April 2002
Volume 70 No 4
$ 5.95

WIRELESS INSTITUTE OF AUSTRALIA

Amateur Radio

Home Brew:

VK3AJK designs and builds his own mast

- ★ An LF/VHF milliwatt/watts power meter
- ★ A *construction report* on the *WBR*
- ★ Power and SWR meter

ISSN 0002-6859
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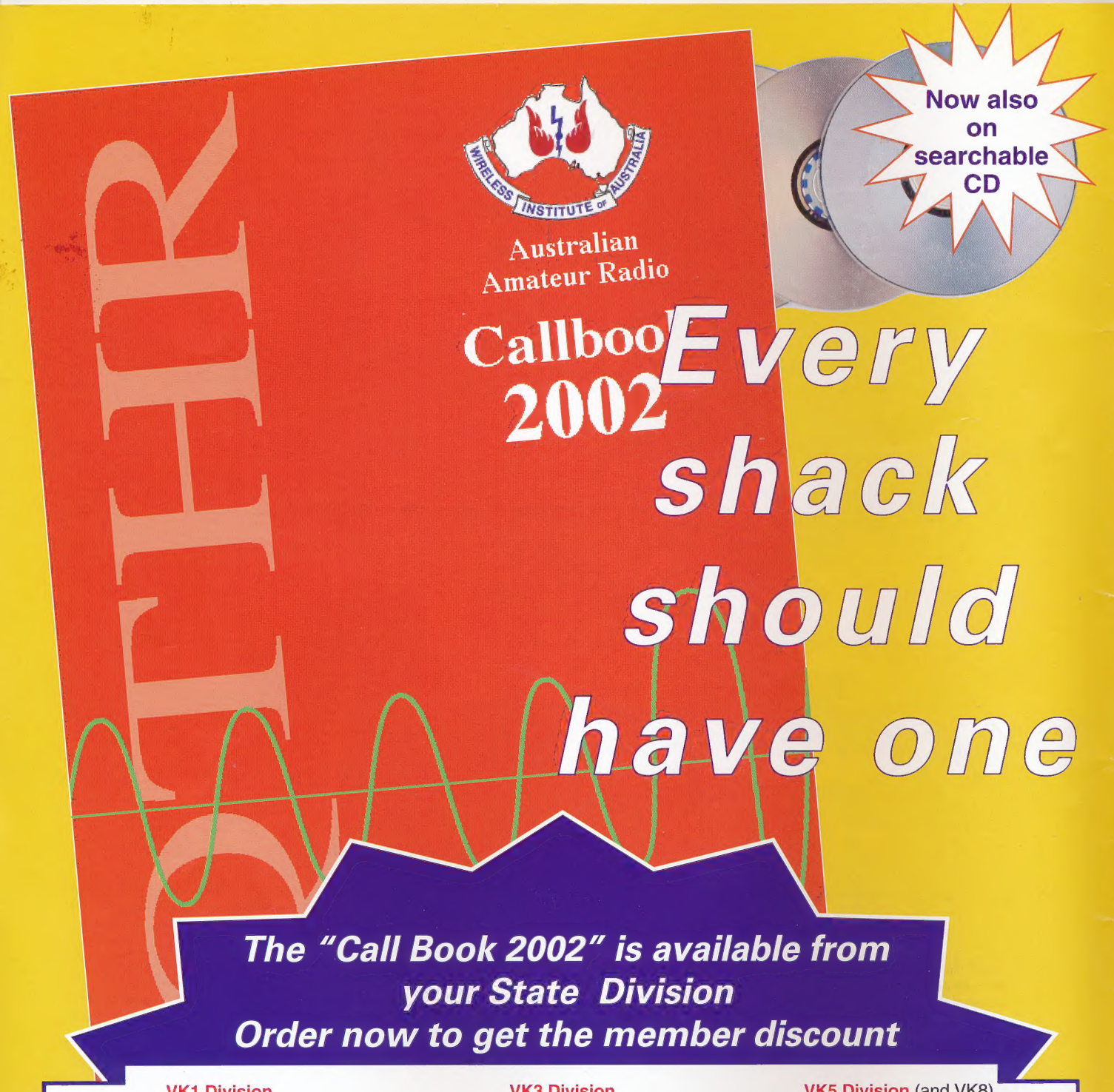

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Amateur Radio

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Volume 70
Number 4
April 2002

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Newsletters Unlimited 03 9756 7797

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5888

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

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Our cover this month

An example of amateur self-training and home-brewing. The mast was constructed by Jack Spark VK3AJK of Lakes Entrance. Jack is a self-trained welder, and designed and constructed the mast without help except for the galvanising. It is one of several; the others were for amateur friends. Submitted by Lindsay Lawless VK3ANJ

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

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A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
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Member of the
International Amateur Radio Union

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Editorial Comment

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Welcome new readers

Welcome to those of you who have bought a copy of Amateur Radio magazine.

The magazine is the journal of the Wireless Institute of Australia, the oldest Amateur Radio Society in the world. The magazine tries to provide a variety of material to its readers each month. There is a group of technical articles and a group of general interest articles in the front of the magazine. There is a section for news from the Wireless Institutes, its State Divisions and from some Amateur Radio Clubs. The back half contains special interest group newsletters like those on DX, Contests and AMSAT. The final part of the magazine is letters from members and advertisements for the sale and purchase of amateur radio equipment.

The debate on where the Wireless Institute should be going and what the future of this magazine continues around the country. If you have been unable to find a Federal Councillor to air your views to, you can contact the President at president@wia.org.au. We aim to become a more cohesive unit and to gather more Australian Amateurs into our ranks. It is the WIA that talks to the ACA and other Government Agencies on be half of all Amateurs. If you are not a member, you have little chance of being heard.

The WIA Federal Convention will be held in Melbourne in May. It will be an evening gathering open to all members of WIA Divisions. This should be used by members to get their views across to Federal Councillors. I hope to be able to publish a report on the Convention in June AR along with a copy of the abbreviated WIA Federal Accounts all in the interest of openness and wider communication which the present Council is endeavouring to develop.

On the real Amateur activities the DXers are having some better conditions and the VHF/UHF enthusiasts are getting out to work longer distances. The contest operators have been out on the John Moyle Field Day in greater numbers than in the last few years and seem to have had a great time all over the country. I was alright until at 10.30pm on a dark road pointing uphill the Beetle battery decided it would not start the car...The one advantage of a 6V system car is you need two 6V batteries to run 12V radio equipment. So unload the equipment, swap over the batteries; reload the car and TG the thing started. The constructors also seem to be busy I have been sent several interesting construction projects and we are now publishing some simple VHF test gear designs which are quite adequate for Amateur use.

Internet linked Amateur Radio. Have a look at http://www.geocities.com/gj7jhf/ilinking.html

Describes many forms of Internet linking but note that not all are allowed in Australia due to the possible ease of access to a broadcasting radio by unauthorised people. "ilink" seems to me to be wide open to unauthorised users unless you sit on it all the time.

The Federal Awards Coordinator Mal Johnson VK6LC has now got a handle on things and next month we will present his first report on the revised system and Eqsling. LOVK and LOTW will be explained.

That is all for now. Sorry if we are a bit late, but that is because I took the time off to participate in the Field Day and a few other "Murphys".

Next month I will have to make space for a few corrections to recent articles.

This month's activity suggestion get all the outside station equipment fixed before winter sets in.

So 73 Colwyn

Ernest Hocking VK1LK
email: president@wia.org.au

Exciting opportunities on the horizon...

AR Trial

As you open this months AR many of you will wonder why this month's edition of AR has a cover price of $5.95. In the March edition I made reference to the need to get the message about what amateur radio has to offer to a wider audience. Towards this end this I have authorised a limited trial of the publication of AR on a number of news stands throughout Australia. Whilst I am sure that not all of you will approve of this step, it is something that I believe that we have to do in order to collect factual evidence about the viability of such a option. This trial has two major aims. Firstly is the need to gain information about the likely take up of AR should it be available on a non-member, non-subscription basis. The second aim is to raise the profile of amateur radio by making key material such as AR available to a wide audience.

There are many exciting oportunities on the horizon for Amateur Radio so we all need to work together to realise these opportunities. Firstly in order to ensure that the message about the benefits of amateur radio reach a wide audience we need to publicise the hobby. A wider publication of AR may be one approach to meet this need. Secondly in order to gain further information on these issues we have arranged for a short survey questionnaire to be attached to this issue. This survey is also published on the WIA web page at www.wia.org.au. I would encourage anyone who reads this issue to reply to the survey. The survey is an opportunity for anyone interested in any aspect of amateur radio to have their say and help to influence the future of the WIA journal. You do not need to be an amateur radio operator to participate.

The Annual Federal Convention and AGM

The Federal Convention and AGM is only a month or so away. As I write these notes there are two main issues which are will occupy the council and executive during the various meetings. The first issue is that of the structure of the WIA. This discussion has been precipitated by a motion from VK5 proposing that a group be established to carefully review the current structure and make its report available for discussion prior to the 2003 AGM. The aim is to have a decision taken at 2003 AGM with implementation taking place over a 2-year period. The need to review the structure and constitution of the Federal body has been driven by a number of topical issues which impact upon many activities and hobbies other than just amateur radio. These include a general decline in the membership of clubs and societies as well as an increased sensitivity to spending money. If the WIA is to be relevant to its membership in the future it needs to carefully define the services that it offers to members and ensure that these services are both relevant to today's hobby as well as being cost effective.

The second major issue will be defining a clear strategy for the future. Many of the matters that have been discussed throughout the last year will reach a critical time during the forthcoming year. Amongst these I include the outcome of the Productivity Commission review, the future of the amateur examination service, and a strategy for the future of AR itself.

This year I am trying to organise two additions to the current convention format. Firstly I am trying to determine whether it is practical to be able to provide some immediate reporting of convention activities. The second addition is to organise an open dinner on Friday 17 May close to the convention location. If this can be arranged it will be a good opportunity to meet informally with the members of the executive and council. We have been given quotations that indicate costs of around $30 per head. If you are interested in attending can you please register this interest with me via email or directly with the Federal Office.

WIA Office bearers

One of the important activities carried out during the convention is the election of office bearers. These are not just the positions of the members of the executive but also includes the various coordination roles that we need to perform. As this issue of AR goes to press there remains a number of roles to be filled. If you have the time and interest I would urge you to make contact with either your local councilor or myself and identify yourself as a candidate for one of the roles. Among the known vacancies are the positions of editor of AR from 2003 on. Colwyn Low VK5UE has indicated that he would like a break from this demanding task that he has performed from the January 2000 edition.

Also vacant are the positions of Federal historian and Federal QSL collection curator. I am sure that you will join me applauding all of the current coordinators for their splendid efforts. Their efforts will stand as a model to future volunteers for these important positions. If you wish to find out more about the nature any of the positions then any member of the current WIA team would be delighted to talk to you

Continued on page 13

An LF-VHF Milliwatt/ Watts Power Meter

Drew Diamond, VK3XU,
45 Gatters Road,
Wonga Park, 3115.

It is generally accepted in the telecommunications industry that power levels shall be expressed in terms of dB referenced to some agreed level, usually 1 mW. Radio is no exception. Communications workers routinely think in terms of dB above or below 0 dBm, where, in radio work, 0 dBm represents 1 mW, usually in 50 ohms. So when a power level of say +20 dBm is required, a quick mental calculation converts this to "20 dB above 1 mW", or 100 mW. Similarly, a power level of -10 dBm is 10 dB below 1 mW, or 100 microwatts. Indeed, after a while, a mental conversion is not necessary, as it becomes customary to simply work in terms of plus or minus so many "dBm"- and leave it at that.

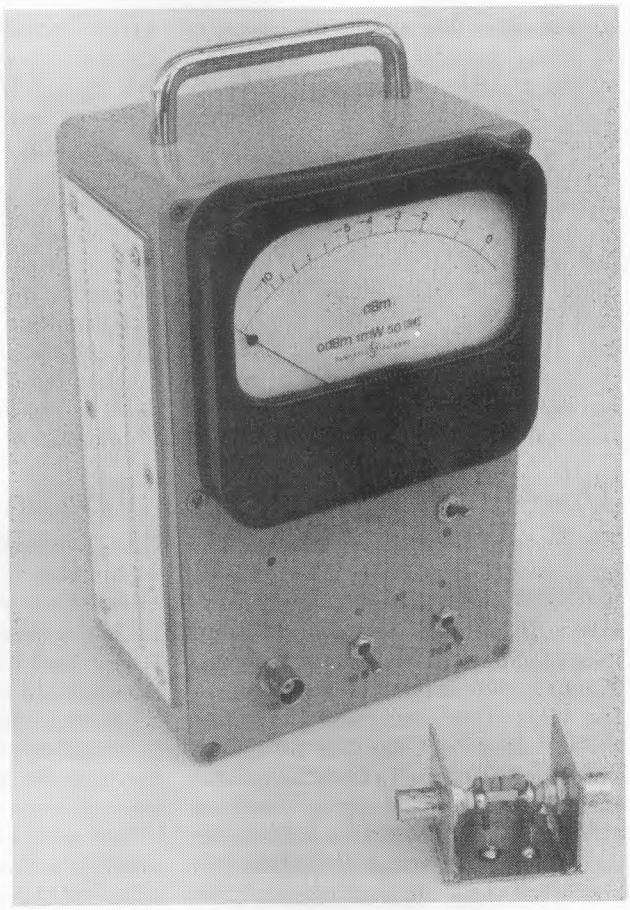

Photo 1: mW power meter and 10dB 'power' attenuator

Furthermore, if it is remembered that 10 dB is a power gain (or loss) of ten times, and 3 dB is a power gain (or loss) of 2 (and that 6 dB is therefore a factor of 4); it is easily possible to determine, by simple arithmetic, any given power level in 1 dB steps, without having to memorise a whole chart, or consult log tables. If you are rusty about "dB"- look up "decibels" in any recent amateur radio handbook (see also Refs. 1, 2 and 3).

Use of power levels in terms of dBm (or dBW; where 0dBW = 1 W) is inextricably linked to all radio frequency power measurements. For example, the local oscillator signal into a ring-diode mixer may be specified by the maker as needing to be (typically) +6dBm, which represents a power level of 6dB 'above' 1 mW = 4 mW. Or a transverter may require a drive power of +13 dBm, which is 10 times and then twice 1 mW = 20 mW. There are many similar instances where the amateur experimenter will need to make an actual power measurement in the mW range in terms of dBm.

However, commercial mW power meters can be quite costly, even second-hand, as they are highly prized by serious experimenters. An example is the excellent Hewlett Packard series 432 power meter, which uses a bolometer as the sensing element (another problem is obtaining a bolometer that has not been burnt-out by a careless user). Such instruments express power in terms of dBm. Where is it necessary to measure a level of say 10 W, we simply insert an appropriate amount of attenuation in front of the meter. A common value is 20 dB worth of 'power attenuator', then an ordinary 20 dB attenuator (which has only to handle 100 mW) making a total in-line of 40 dB, and therefore, for 10 W input power, 1 mW will be delivered to the meter's input, which will read 0 dBm, or 1 mW. With such an outfit, the experimenter can measure a wide range of power levels, from milliwatts to tens of watts, or even hundreds of watts if suitable attenuator(s) are available.

Here are details of a simple mW power meter that suits many amateur applications. Basic sensitivity is 100 mW to 1 mW (-10 dBm to 0 dBm). With internal switch attenuators of 10 and 20 dB, measuring range is from -10 dBm to +30 dBm (1 W). The range is extended to +40 dBm (10 W) by use of an external 10 dB 'power' attenuator. Frequency range is within plus or minus 1 dB from less than 50 kHz to at least 150 MHz, and is quite useable to about 300 MHz.

Circuit

To obtain adequate sensitivity down to -10 dBm, a pair of ordinary BAT-46 hot-carrier diodes form the RF detector element (Fig. 1). Sensitivity is significantly improved (over a single diode or voltage-doubler) by using the diodes in a full-wave rectifier configuration, and thus driving the -ve and +ve inputs of an LM386 amplifier. In this iteration, the '386 is configured as a dc, or servo amplifier. When no dc signal is present at the input, the output

of the '386 at pin 5 rests at about half rail; 4.5 Vdc. The 1 mA meter and calibration pot are connected in what is virtually a bridge, between pin 5, and the centre of a voltage divider, being the slider of the 500 ohm bal(ance) pot. At balance, the meter reading will be zero. Now, when a dc signal- the result of detected RF at the signal input, is applied to the '386 input, the voltage at pin 5 will move in a positive direction, thus unbalancing the bridge and proportionately driving the meter.

A useful degree of input protection, and improved insensitivity to battery voltage variation is obtained by connecting a third BAT-46 diode across the detector output as shown. Very little current is drawn from the detector by the '386, but the tiny capacitance of the diodes causes the input to look slightly reactive. The 3 dB attenuator (6 dB return loss) effectively masks this small reactance, and thus improves the overall accuracy of the instrument.

Construction

For good resolution, I have used a rather larger 1 mA meter than perhaps would be expected for such a simple instrument- but the meter size is up to you. The die-cast box for the prototype measures 120 x 185 x 80 mm. Any box, metal or plastic, which will accommodate your chosen meter should do. The 9 V 'transistor' battery and holder may be fitted inside or outside, as desired.

The components are accommodated upon a plain printed circuit, which measures 100 x 80 mm, in a meld of 'ugly' and 'paddyboard' style (for a description of 'paddyboard' style, please see Ref. 5). A suggested layout is shown in Fig. 2 and Photo 2. Only the attenuator resistors and detector components need have short lead lengths, so the remaining components may be wired up using any chosen method- including 'ugly' style.

For ease of working, the '386 should be fitted into a suitable socket, which is attached with fine tinned copper wires (about 0.6 mm) upon a segmented substrate board, which in turn is superglued to the main board. Or you could use part of an experimenter's board (upside-down), available from DSE and Jaycar. Connections for the battery holder and meter may be made with ordinary insulated hook-up wire.

An additional external 10 dB 'power'

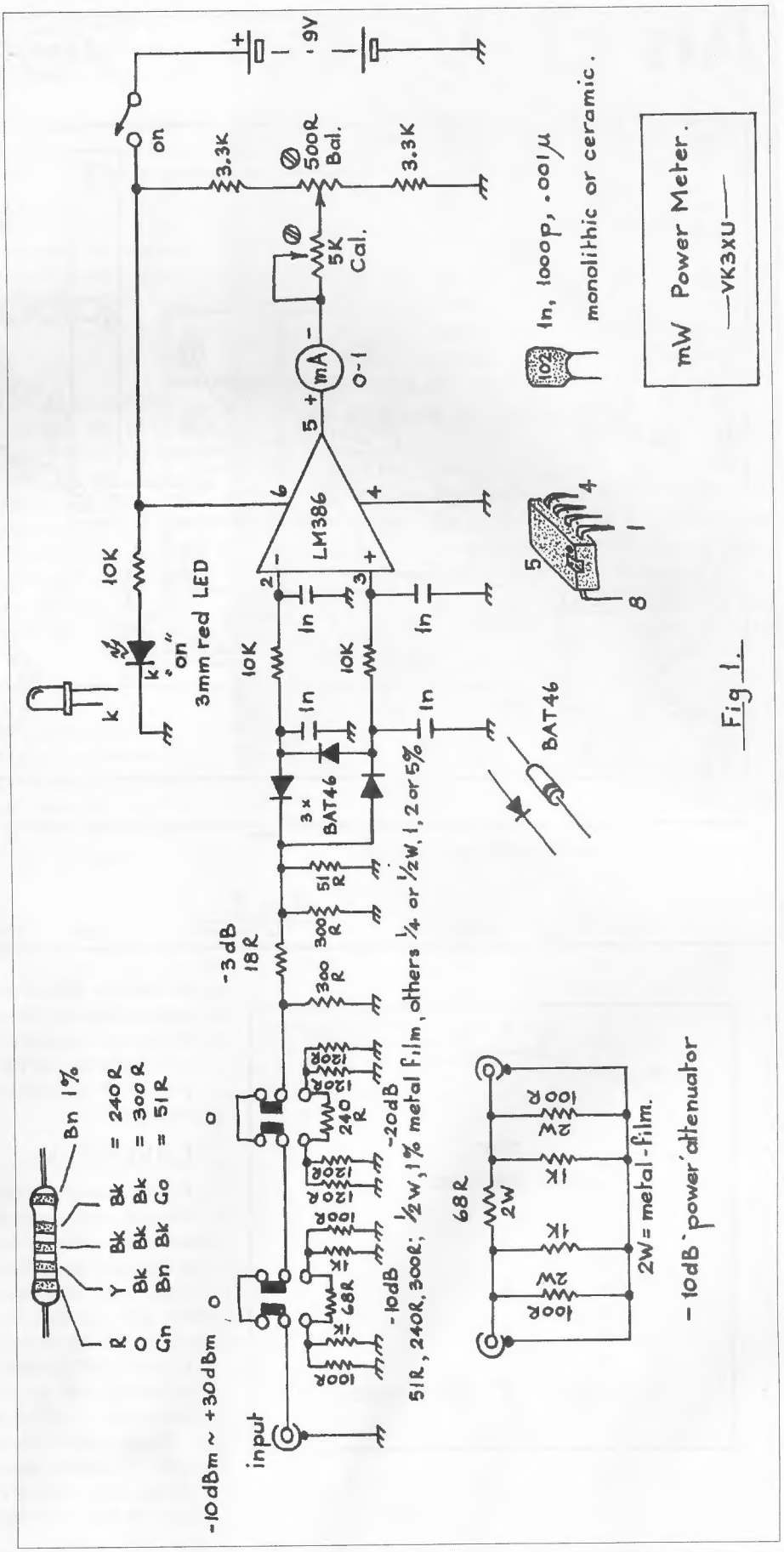

Fig 1.

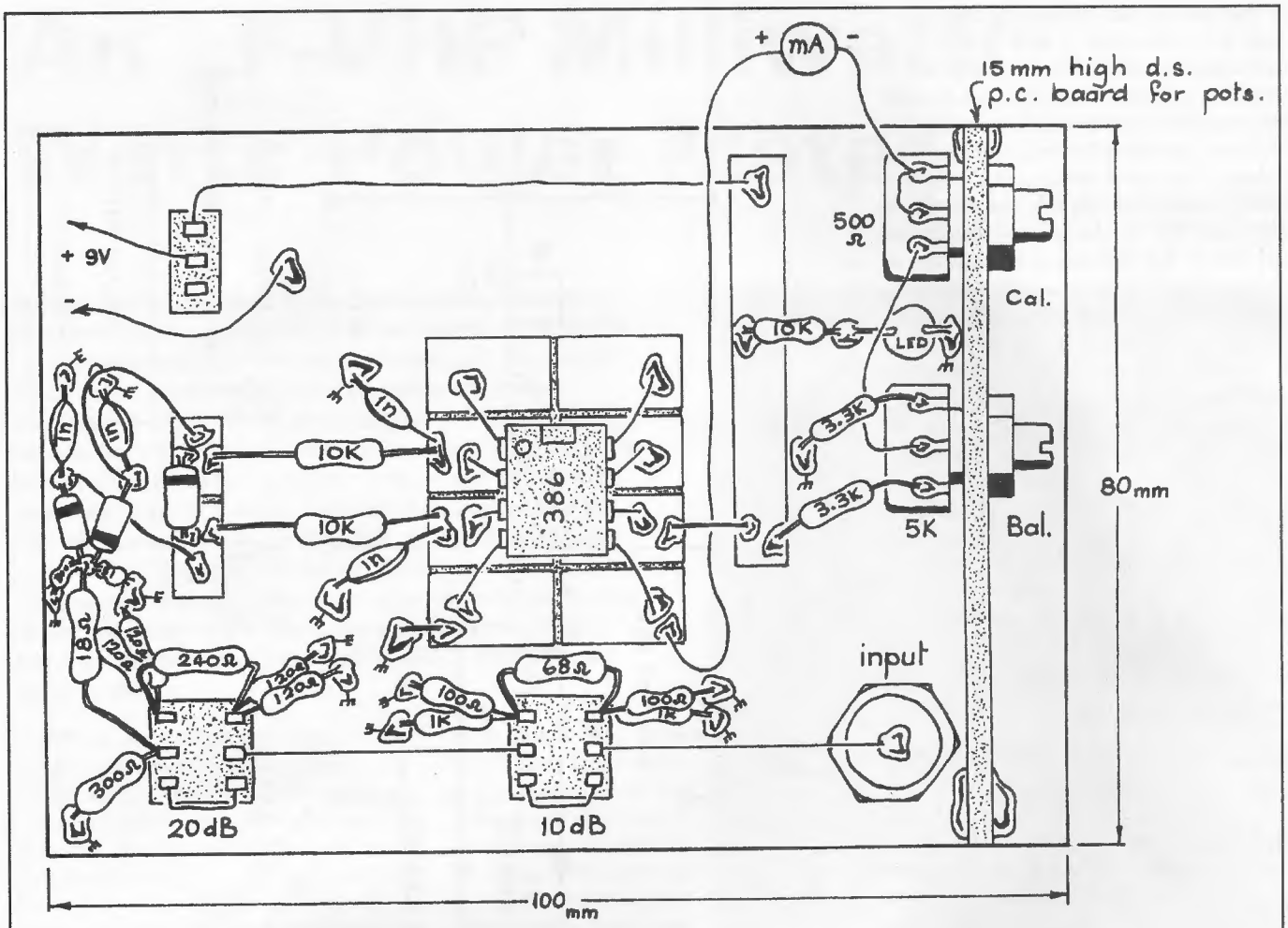

Fig 2

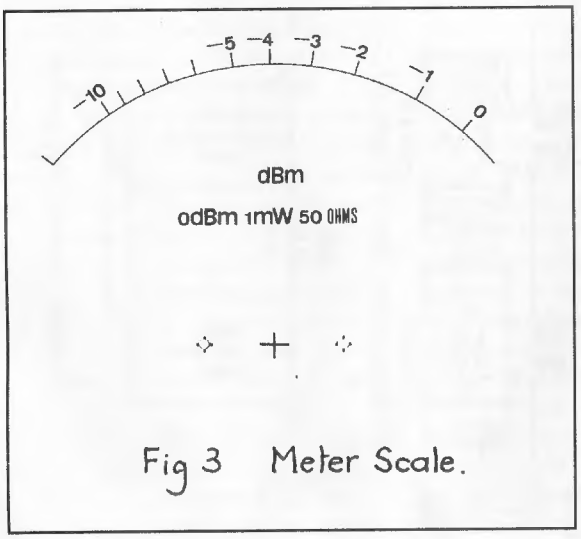

Fig 3 Meter Scale.

attenuator, which permits measurements to 10 W, is highly recommended. An example model, made from scraps of double-sided printed circuit board, is shown in Photo 1, and schematically in Fig. 1. For measurements up to 100 W, a power attenuator similar to that described in Ref. 6 is suggested.

Calibration

Before switching on, check your wiring again, and confirm that all components are correctly placed. Pay particular attention to the polarity of the diodes, and that the '386 chip is oriented correctly (wrong direction may destroy the chip). Switch on, and adjust the Bal. pot for no meter deflection. Set the Cal. pot for maximum resistance. If you have a calibrated (output) signal generator, one which can deliver a known 1 mW (0 dBm) signal; then you will know what to do. Adjust the Cal. pot so that the meter reads about 80% of full-scale for a 1 mW input signal (no attenuation switched in).

No sig gen? If you have a HF transmitter that can deliver a QRP CW signal known to be 1 W; switch in the 10 and 20 dB attenuators. With 1 W applied, adjust the Sens. pot for about 80% of fsd. If you are not sure as to the accuracy of your "1

W" input signal, I suggest use of the probe described in Ref. 7, which, when applied to the input connector, should read 7 V, representing just under 1 W in 50 ohms. With 30 dB 'in line', the meter then reads 1 mW/0 dBm.

The -10 dBm calibration point can be established by inserting a further 10 dB attenuation. If you have a 1 dB/step attenuator (such as described in Ref. 8), then the 1 dB calibrations can be found and marked. However, without a 1 dB/step attenuator, the scale of the prototype, shown in Fig. 3 may be relied upon as being sufficiently accurate for amateur work. It is suggested that the dBm: (rounded) power chart, shown in Table 1, should be copied, and affixed to the box, as shown in Photo 1.

Operation

Some sample input powers and their readings would be as follows; a 500 mW signal would require to have the 10 and 20 dB attenuators switched in and the meter would read -3 dBm (+27 dBm, or 3 dB down on 1000 mW), 50 mW would read -3 dBm with just the 20 dB attenuator in (+17 dBm), a 2 mW signal would require the 10 dB attenuator in, and the meter would read -7 dBm, ie. +3 dBm, and so on. For a 100 W (+50 dBm) signal, we would require 20 dB worth of 'power' attenuation (eg. the 10 dB power attenuator of Ref. 6, and the 10 dB described here), and the internal 10 and 20 dB attenuators switched in.

Parts

Most components, including miniature pots for the 'trim-pots', are available from our usual electronics vendors. Additionally, BAT-46 diodes (as replacement for their catalogued OA95) are available from Jaycar. 2 W metal-film resistors may be ordered from Electronic World (Ph. 03 9723 3860- will answer mail orders), or from suppliers to the TV service trade.

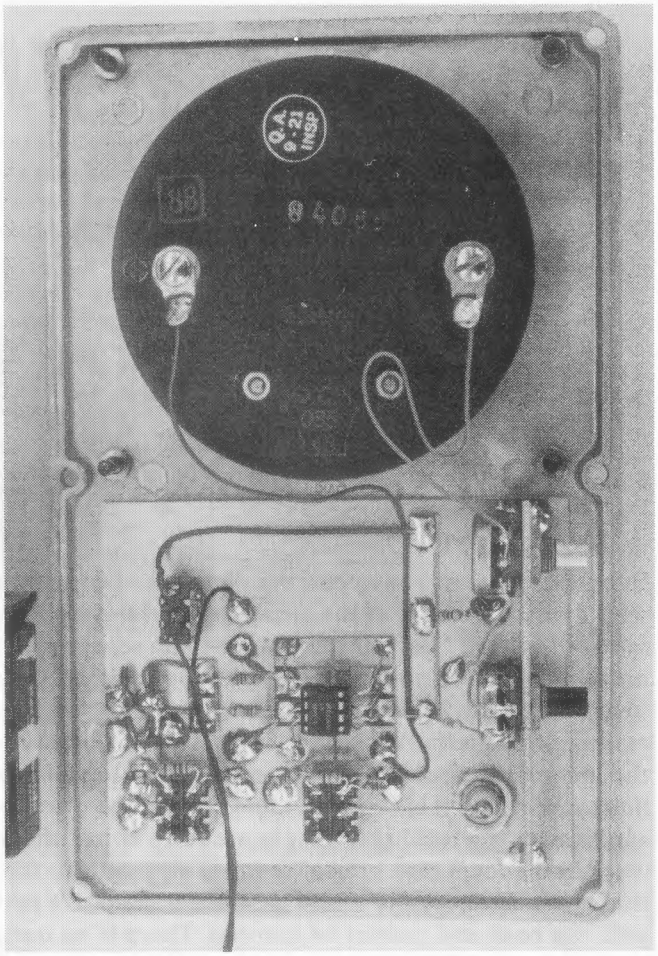

Photo 2: Internal view

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7. "An RF Voltage Probe", Diamond, AR, Aug. '00.
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ar

dBm	Power		dBm	Power	
30	1000	mW	9	8.0	mW
29	800	" "	8	6.3	" "
28	630	" "	7	5.0	" "
27	500	" "	6	4.0	" "
26	400	" "	5	3.15	" "
25	315	" "	4	2.5	" "
24	250	" "	3	2.0	" "
23	200	" "	2	1.6	" "
22	160	" "	1	1.25	" "
21	125	" "	0	1.0	" "
20	100	" "	-1	800	uW
19	80	" "	-2	630	" "
18	63	" "	-3	500	" "
17	50	" "	-4	400	" "
16	40	" "	-5	315	" "
15	31.5	" "	-6	250	" "
14	25	" "	-7	200	" "
13	20	" "	-8	160	" "
12	16	" "	-9	125	" "
11	12.5	" "	-10	100	" "
10	10	" "			

Table 1

What does the WIA do for Australian Amateurs?

Ernest Hocking VK1LK
President, Wireless Institue of Australia

Over the last year I have had the pleasure of corresponding with many members of the amateur radio fraternity on a range of issues. Many of these have been reported in my monthly notes column. One thing though sticks in my mind above all others in my dealing with everyone that I have corresponded with. What then is that thing? Put simply it is the incredible passion that we amateurs all have for our hobby. Whether it is the individual collections of vintage equipment, the local club that is proud to show off its handy work in the local club house, or more ambitiously the groups that strive to show the world that Australians are up there with the best and cannot be ignored. There is no denying that radio today still has all the magic that attracted people to the hobby all those years ago, when it first emerged onto an unsuspecting world.

Why then, if we are such an entrepreneurial group, do we need an organisation such as the WIA? Or put another way what does the WIA do for you the members? For me; trying to answer this question has been an interesting exercise. In order to answer the question I have divided the various activities and services up into a number of categories:

Communication

I believe that one of the prime services that the WIA offers to its members is communications. This is not simple by stating that the WIA informs it members what is going on by virtue of publishing AR on a monthly basis. Rather I mean that it offers the opportunity for dialog with all amateurs operators. This dialog is necessary in order that many of the WIA's functions can be effectively carried out. Activities such as *direct representation* via *IARU (International Amateur Radio Union)*, or *indirectly* through participation in the various *national consultative groups* can only be effective if the office holders are aware of the issues that affect the members.

AR, the house journal of the WIA itself fulfills a number of key functions. It is a key means of informing members of what's going on within the hobby. It is not the role of AR to compete with academic journals, but by the same token it does provide an excellent vehicle through which members can communicate technical ideas relevant to the practical operations of radiocommunications. Increasing many of us rely upon the Internet and in this the WIA web page is a another key part of our communication strategy. Over the next few months I expect we will be able to provide more material on the web page that is both topical as well as of a reference nature.

Another area where communications are important is in the role of the *Technical Advisory Committees*. Whilst not always visible, this nationwide group that reviews and comments on technical matters that have an impact on amateur radio operation are always hard at work. In addition to liaising on matters such as band plans in the last year they have to provide comment to various government groups on matters such as the use of vehicle borne radar to the possible interference impact of using the electricity grid to provide broadband Internet communications.

Additionally there is the *debate of matters of significance*. In today's connected world it is possible to have an almost real time debate about matters of importance. No longer can organisations state that it is too difficult to discuss matters of importance. The recent discussion on the future of AR itself is a case in point. If you have a viewpoint, then your voice can be heard. Today's WIA is keen to engage all amateurs in these discussions in order to ensure that the best interests of amateur radio are met.

Services

There are a number of vital services that we all associate with the WIA whether at a Federal or a Divisional level. The first that springs to mind is the provision of *QSL services*. However there are many more. The WIA provides a key role in the coordination of all *education matters* of relevance to gaining the amateur radio certificate of proficiency. This extends right from the setting of the syllabus through to the issue and marking of examination papers. If our recent application to the ACA is successful then I hope that in the future that we will be delegated full custody of the examination service.

Two more areas of service are in the *coordination and management of contests and awards*. The amount of work that goes on behind the scenes to ensure that overseas as well as Australian amateurs receive a prompt service has to be seen to be believed. Although all of the work is done by volunteers I am sure that the WIA has a key role in being accountable for ensuring that these roles are carried out to everyone's satisfaction. Another critical service is the *monitoring of illegal activity* through the intruder watchers. This dedicated group are responsible for the collection and presentation of evidence of all violations of the Australian amateur Spectrum. Without the efforts of the intruder watchers many of our frequencies would have been rendered useless a long time ago.

Summary of main WIA services

- **QSL services**
- **Major role in amateur radio education**
- **Coordination of contests and awards**
- **Monitoring of illegal activity**

Divisional services

Not all services are provided by the Federal WIA. Many are provided at local Divisional and Club levels. Here the practical side of radio is delivered. *If you have a problem* with your antenna there will always be someone to provide a hand. If you are having *difficulty obtaining planning permission* for that longed for mast, the local club or division can assist. Many of us make regular use of the various *VHF and UHF repeaters*. It is often the local WIA Division and club that provides the technical expertise, funds and enthusiasm to make it all happen. So you are not a VHF operator - well have you ever thought about who provides the *range of beacons* that can be used to assess HF propagation - you guessed right - probably a local WIA representative group.

The WIA does not of course provide every amateur in Australia with all of these services. However, if your are an active operator or experimenter, then I feel sure that in some way the WIA will be acting to support you. So why don't you inquire of your local club to see what the WIA can offer you, or even better what you can offer them. *By acting in unison we can ensure that amateur radio is properly represented at all levels of State, Federal, and International Government.*

How to join WIA

- **Through your local amateur radio club**
- **Through your Division (contact details on inside back cover)**
- **Contact WIA Federal Office (03) 9528 5962**

Why not think about joining WIA today?

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Andy VK3IV

Bright ideas

A Cradle for Portable Transceivers

Use for a pair of chopping-boards

Peter Parker VK3YE
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Portable operation often requires that the operator dispense with the comforts of home. Where equipment is hand carried the single operator can only afford to take necessities such as rig, battery and antenna. Unless it is possible to also take a portable table, both operator and equipment must sit on the ground. A small transceiver flat on the ground is very hard to reach and makes for bad ergonomics. Microphone connections can be strained, cabinets can be scratched and dust ingress is easier. Reading the transmitted frequency or adjusting the controls is also made very difficult.

Transceivers such as the Forest Phone and some Codans overcome this by being usable with the front panel facing upwards. Having all connections emerge from the front or side and providing a squat shoebox-style case. Controls and connections on the top achieve this. More recently outdoors minded QRP constructors, mainly in North America, have started doing likewise often referring to their designs as "trail friendly radios" However even, when commercially available amateur transceivers can sit flat on their back panel, their depth usually makes them liable to tip.

This project is a simple bracket to allow easier operation of the Yaesu FT-817 when no table is available. It folds flat for easy carriage. When folded the bracket can replace the trusty paperback book that is necessary for convenient tabletop operation of this transceiver.

Photo Cradle in use. (Perspective funny as it is on a shed roof for better photography)

Construction should be fairly self-evident from the photograph. The bracket is A shaped and made from two small polyethylene chopping boards. The boards are attached with a metal hinge. The boards open out to a maximum angle of 90 degrees. This angle is limited by the placement of the hinge and the overhanging ends of two bolts used to mount the hinge. The transceivers rear panel is restrained by a U or L shaped metal bracket. This is screwed onto one of the chopping boards. The placement of this bracket should allow sufficient clearance for the rear panel antenna, power and key connections. A rubber band further stabilises the rig. Total cost of all parts should be around, ten dollars.

The bracket has been used during several portable excursions. It has made operating much more comfortable and is recommended for any amateur who uses modern equipment in the field.

NEW WIA MEMBERS

The WIA bids a warm welcome to the following new members who were entered into the WIA Membership Register during the month of MARCH.

L60350	MS S L KEOGH	L60425	MR D HOWARTH
L60420	MISS N P HUSK	VK2ANI	MR L FURNER
L60421	MRS M J L BONDARENKO	VK2AYO	MR D H WALTERS
L60422	MR A V BONDARENKO	VK2CB	MR D J REYNOLDS
L60423	MR K J PESTELL	VK2EXA	MR G C SARGEANT
L60424	MR C G ROBERTS	VK4SG	MR S R GRANTHAM

Junked crystals make a Tree-top Tester

Steve J Mahony, VK5AIM
19 Kentish Rd, Elizabeth Downs.
South Australia 5113

In an article in AR it was mentioned that useful crystals could be obtained at junk sales. I have become a "bower bird", in collecting crystals from scrapped printed circuit boards (PCBs). It is also a name given to people who collect things to which they are attracted, or so that no one else can have them!

These printed circuit boards usually have one or more crystals on them. An inspection often reveals crystals of a useful frequency. Crystals marked with an even frequency, eg 5◊000MHz ,10◊000MHz, are the ones to look for. The little crystal oscillator modules are also worth looking for. I have one on 48◊000 MHz along with the necessary extra components that makes an excellent marker for 144 MHz and 432 MHz. The RSGB had an article on similar dual band marker recently.

I have found that the easy way to remove the chosen crystals is to use a small sharp blade of a small pocket knife. Just slide the blade along remove the solder pad and cut through the fine wire lead. As the holes are usually plated through, they require too much heat to unsolder. You may have to prise the crystal off the board with the same blade as they are often stuck on with double-sided tape. With a little patience useful crystals can be salvaged.

Imagine my surprise when on one PCB I found a crystal marked 14.318 MHz. Right up at the top end of the 20 metre band! No wonder computers put Sproggies on the Amateur bands. Ha Ha, I thought this crystal would make an excellent Weak Signal Source!

Either before or after finding this crystal I salvaged a nice little silver plated box. The box was about 3 inches x 3 inches x 1 inch deep. The lid was fastened with 6 BA screws into threaded bushes. I think it once contained a Filter. It was ideal for my weak signal source.

A search through various technical articles found a circuit. In no time I had an oscillator going wired up rats nest style on the workbench. It pinned the S meter needle on the IC735.

The little box was measured up to allow for a PCB a 9 volt battery and a BNC socket. A circuit was drawn on a suitable sized piece of double-sided PCB with a resist pen and etched. It was drawn almost like the circuit to allow the components to be surface mounted. Room was allowed for an attenuator pad at the output. Not many components were required - a 2N3819 FET , a BC557 transistor and a few resistors and capacitors. A tin plate shield and divider for the attenuator was fitted around the PCB. A feed through capacitor for the 9V DC was provided. With the lid screwed on and a 50 ohm termination fitted to the BNC output connector not a squeak could be heard on the IC735 when it was switched on. I had to adjust the values of the attenuator pad to get a 9 reading on the IC735 S meter: corresponding to 50 microvolts. I have decided to leave the battery out after leaving the thing switched on for several months stored in the cupboard!

Somebody suggested that I buy a toy koala, place the oscillator inside ... and put it up a gumtree

Together with a switched attenuator and fixed attenuators, it is interesting to compare the sensitivity, AGC action and minimum signal detection of various receiver/transceivers. With an AC millivolt meter connected across the speaker it is surprising to see the difference. A FT-757, IC735 and the new IC-706 all behave differently. I was really surprised with the weak signal sensitivity of a simple direct conversion receiver. Anything the 3 big ones could just hear the direct conversion receiver could detect and hear!

It has been interesting to take the weak signal source around to other amateurs' shacks and see how their receivers/ transceivers perform! Most enlightening at times.

I have even hidden the weak signal source in an empty drink carton with 10 feet of green hookup wire attached to a BNC connector, taken it down to a nearby park, switched it on and tossed it up into a gumtree. I then came home to listen for it on the IC735! I could hear it on the 3 element monoband beam. While not strong enough for the S meter to read, I could see the front to back ratio and side rejection of the antenna.

Somebody has suggested that I buy a toy koala, place the oscillator inside complete with green wire antenna and then put it up a gumtree

So there you are keep your eyes open for the right crystals on those junked PCBs and you could have a nice set of test oscillators.

ar

Problem with your antenna?

Ask your local WIA club or Division for help

(For Divisional contact details inside back cover)

AMSAT-NA Chief visits VK

By Jim Linton VK3PC

The President of AMSAT-NA, Robin Haighton VE3FRH, was billed as an international amateur satellite expert in publicity for his recent talk in Melbourne. He not only lived up to that description, but showed he is a down to earth and keen active radio amateur.

L-R Jim Linton VK3PC, Robin Haighton VE3FRH, Keith McCarthy VK3JNB at the MDRC

Robin said the pioneering work of radio amateurs that began at the turn of the last century leading to many communication facilities we now enjoy, is being carried on today by AMSAT with innovation and the development of many ideas within small satellites.

His talk at the Moorabbin and District Radio Club attended by 90 radio amateurs included details about a new satellite project. .

AMSAT-NA has just signed a contract with a US firm SpaceQuest for a Low Earth Orbit (LEO) satellite called Echo, which is due to be launched at the end of this year.

He said, "This microsatellite with 8-watts downput and very sensitive receivers will enable users to communicate using analog voice on several VHF uplink and UHF downlink channels simultaneously - but with handheld QRP power!"

Other features of Echo will be APRS packet data, and PSK-31 oper-ation (28 MHz up/70cm down), uplink voice or data on 23cm, 2 metres or 10 metres with a 70cm downlink.

"It will be over Australia every 90 minutes with passes ranging from 10 to 20 minutes, depending how directly it passes over Australia at any one time," Robin explained.

In another project, AMSAT-NA is moving ahead with Project Eagle, which will complement AO-40, be put into a similar geosynchronous transfer orbit, and cover the 70cm band, the 2-metre, S and L bands. It is hoped to be launched in 2004.

Also on the drawing board, Germany's AMSAT-DL is in the preliminary stages of planning a mission to the planet Mars in about 2007-8. It would probably use a satellite about the size of AO-40.

AO-40 – success out of post launch failure

Using a Power Point presentation Robin provide a step by step look at the Phase 3D AO-40 satellite, the most ambitious amateur satellite project ever.

Its configuration is six-sided, with solar panels on each side, and its weight is 632kg. When the solar cells are deployed they are about 7-metres across.

Robin conceded that in his opinion "AO-40 took too long to build, it's too big in size and complexity, and we have had some failures with it."

Apart from the disappointing loss of its 2 metre trans-mitter due to internal damage to the satellite, Robin said AO-40 is working extremely well.

"NASA is looking on us very favourably and saying 'hey you guys did a great job for us and now what can we do for you?' "

Its originally intended orbit would not have favoured the Southern Hemisphere, but its current orbit, the result of propulsion difficulties, is giving very good reception in Australia.

He explained how it was launched on November 16, 2001, into an almost perfect geosynchronous transfer orbit, and within a few hours telemetry was being received from its 2 metre beacon.

It was necessary to make some orbital changes and stablisation, and deployment of solar panels, before AO-40 was open for general use by radio amateurs

Robin explained that all was going well until December when the satellite's 400-newton motor was operated. During one burn attempt nothing happened, due to a suspected sticking valve.

On a later burn of the motor was due to last three minutes, the motor did not shut off for a further two to three minutes, placing it in a higher apogee orbit.

On December 11, 2000, while remotely working the troublesome fuel valve, a sudden loss of signal from the satellite occurred. Robin recalled how everyone feared that AO-40 has suffered an onboard explosion, or thrown into an orbit away from earth.

"All we could do for about three days was weep," he said, "but fortunately NORAD (North American Aerospace Defence Command) found it to be in one piece, and not a thousand pieces as we had thought."

After a lot of experimentation, ZL2AOX found he could activate one of the satellite's transmitters. That was on Christmas Day 2000 (UTC) when he put up signals on 70cm and activated the S-band (2.4 GHz) transmitter on the satellite, and downlink telemetry was successfully recovered.

Robin said, "It was the happiest Christmas many radio amateurs around the world had had for many a long year."

The satellite was then painstakingly tested, and progressively brought into service, with the S-2 band transmitter opened for general use on 5 May 2001.

Found to be working fine were the 70cm and 1.2 GHz receivers, the S-2 (2.4 GHz) transmitter, the magnetorquing system (to control the satellite spin rate),

onboard cameras, and high-gain antennas.

One of the cameras has already transmitted pictures of earth from space. In the middle of this year AMSAT plans to take a series of images of earth from the satellite, transmitted digitally via its RUDAK system.

A unique feature on AO-40 is called LEILA, which senses excessively powered SSB uplinks, gives an audible warning, and then notches out the offending signal preventing its access, and "hogging" of the transponder.

Robin encouraged radio amateurs to consider using AO-40, its orbit providing excellent coverage over many hours.

A 70cm SSB transceiver with a beam for the uplink, and a relatively cheap 2.4GHz downlink receiver and antenna is required. A number of regular operators are using AO-40 while portable, showing it is relatively easy.

Apart from SSB telephony the satellite is also being used for digital contacts, PSK31, and some SSTV.

Giving NASA useful data

While AO-40 was being built, NASA approach AMSAT with a Global Positioning System (GPS) package and asked if it would be interested in putting it on board the satellite.

Robin said the NASA project was to try and determine the location of the satellite, when it was outside the orbit of the GPS ring of satellites.

NASA stipulated that its package needed to be tested early in the orbit life of AO-40, but none of the equipment was radiation hardened, and not expected to last the rigors of space more than three months.

The propulsion difficulties experienced meant it was a year before AMSAT could get around to activating the NASA GPS package.

Everything worked 100% giving NASA excellent data. The outcome is that using GPS, satellite orbits can be more accurately measured, which will mean that in the future more orbit slots are now possible over the equator for geostationary satellites.

Robin said, "NASA is looking on us very favourably and saying 'hey you guys did a great job for us and now what can we do for you?' ... and discussions are ongoing and look most encouraging."

Exciting opportunities on the horizon...

Continued from page 3

Productivity Commission

Late last year I reported on the Productivity Commission in their efforts to review the current Radiocommunications Act. Their efforts are mostly aimed at the larger commercial users of the Radio Frequency spectrum. Even so the needs of the amateur radio community were listened to by the Commissioners as is reflected in their draft report, which can be found on the Productivity Commission web page at www.pc.gov.au. It is pleasing to note that they have a clear recommendation to examine the devolution of many of the current administrative arrangements conducted by the ACA to the WIA (Section 11.1, recommendation 11.1, page 248). This recommendation has the potential to have a significant impact on the WIA and the manner in which it operates. I have asked the Divisions for their comments on the draft and will attend the final round of public hearing in April to ensure that the best interests of amateur radio are represented.

Well that brings me to the end of this month's notes. I trust that all readers of this edition find something of interest to them. Once again can I please urge everyone to respond to the attached survey. The WIA needs to adapt to meet future amateur radio requirements. This is your chance to make sure that your views are heard

73s and I look forward to hearing your views.

Ernest Hocking VK1LK

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Bright ideas

Another battery saver timer

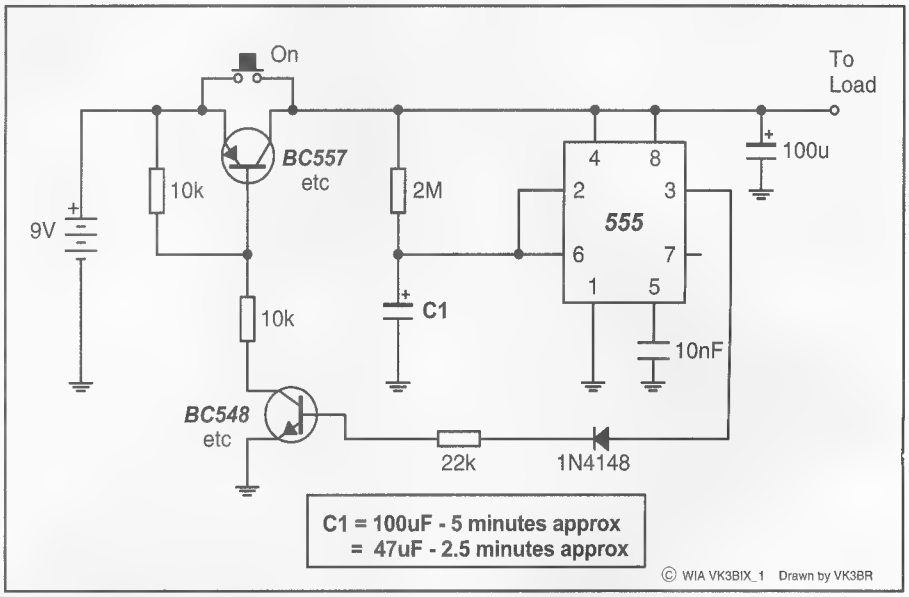
Evan Phillips VK3BIX

Recently I made up a piece of test equipment of a type that would only require use for a minute or two on any occasion.

As I was concerned that the 9V battery would inevitably be destroyed by my failure to switch the unit off after use or by accidental switching on, I devised a simple circuit which only allows use for a set, short period after pressing the "ON" button.

When the unit is OFF the only current flow is through the emitter-collector junctions of the two transistors and, with no bias applied these things have resistances of heaps of megohms. I was unable to detect any current drain using a DVM and think that the battery will last virtually its shelf life in the OFF state.

When the "ON" button is pressed, the 555 timer is powered with pin 3 high, both transistors switch on and the load is supplied through the BC557. When the timed period is over 555 pin 3 goes low, and the system instantly switches off. The diode is needed to ensure a clean switch-off of the system. Note that pressing the ON button during a cycle will not lengthen the ON time. After switch-off, the ON button can be again pressed to repeat the cycle.



This arrangement can be used with gadgets requiring larger batteries, with the BC557 being replaced with a higher current transistor if necessary.

AT

Silent Key

John Eastaugh VK5GY

John Eastaugh was born and raised in Southern England. He joined the Royal Air Force at an early age, served in Europe, the Middle East and Australia. While in the Middle East he obtained his Amateur Radio License by correspondence, later to qualify in Morse at a Royal Naval Base on return to England.

He left the RAF at the age of 40 and immigrated with his wife Iesje (eesha) to Adelaide where he took Managerial work with GEC. He later ran his own business in the manufacture of domestic and small business Kilns.

He retired early and built his own home at Bull Creek, Meadows. Nr Adelaide. His QTH was on a ridge at one of the highest points in the region and with a self constructed 70ft x 4 section free standing adjustable tower topped with a TH6, he was well known internationally on HF.

He was a member of the South coast Amateur Radio Club, a member of WICEN, and was a keen motorcyclist.

John and I met on local Packet some ten years ago at a time when we were both trying to discover how to use Computers with Amateur Radio. We became close pals, able to visit each other regularly and chatted on Packet three nights weekly between 11pm and midnight.

Apart from his wife Iesje he leaves a daughter and family, son in America, and many friends in the Adelaide region. He died after a short illness at the age of 67. He will be sadly missed by all who knew him.

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Mail: glenhardy@chariot.net.au
Packet: vk5afp@vk5tty.#adl.#sa.aus.oc

A Constructor's Report on the WBR Receiver

Peter Parker VK3YE
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Web- http://www.qs1.net/vk3ye

The WBR is a novel regenerative receiver using a bridge style method of coupling the antenna to the receiver's detector. Other features include a separate local oscillator and infinite impedance detector. The project was first described in reference 1 and is summarised in reference 2.

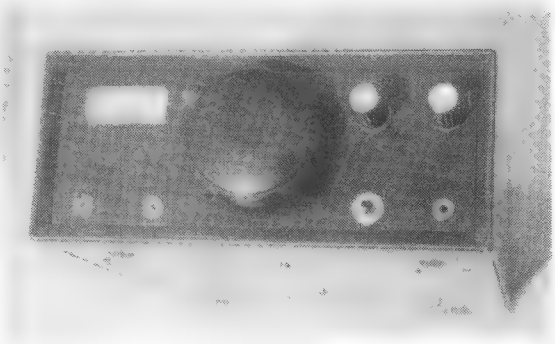

Photo 1 WBR Receiver.

Changes made

The WBR pictured was constructed in August. 2001 shortly after the article became available in Australia. The following modifications were made to suit available components and the author's preferences:

- Use of BZY88 zener diodes instead of the varactor diodes specified.
- A HEF4007 biased in linear operation as the audio amplifier. (see Reference 2) instead of the LM386 to provide sufficient gain for speaker reception.
- Use of a meter movement scaled 0-10, to monitor tuning voltage and thus provide a. rough indication of received frequency
- Substitution of a BC547 for the 2N3904,
- Use of a T50-2 toroid instead of the T68-6 core specified.

Results

The receiver worked first time, but sensitivity was poor. This deafness is not an isolated problem as Drew VK3XU reported similar results with his WBR.

When looking for ways to restore sensitivity, my attention was turned to Z1. This is effectively a short circuit across the antenna connection. I say effectively because it consists of just 25 millimetres of wire with the antenna tapped at the midpoint. I concluded that any receiver with a short circuit across the antenna connection is bound to be deaf and proceeded to seek alternatives.

Sensitivity increased dramatically (possibly 20dB) when the wire link was replaced with a 0◊22uH RF choke. The wiper of the RF gain control was connected to the junction of the RF choke and the centre tap of Ll via a 10nF capacitor. The RF choke used was salvaged from the pi network of a 27 MHz CB radio.

After the modification, speaker reception of VK stations became possible in a quiet room. DX stations could be clearly heard on headphones and band noise was apparent when connecting the antenna. Though there was a risk that the change could give rise to frequency pulling, the receiver remained on frequency at all settings of the RF gain control.

As an experiment, the 0.22uH was replaced with a 0.65uH inductor. Overall receiver gain increased, but there was some detuning caused by adjusting the RF gain control. The amount of frequency pulling was approximately 500Hz, so it would be annoying if frequent adjustment of the RF gain control was required.

Another exercise was to replace the

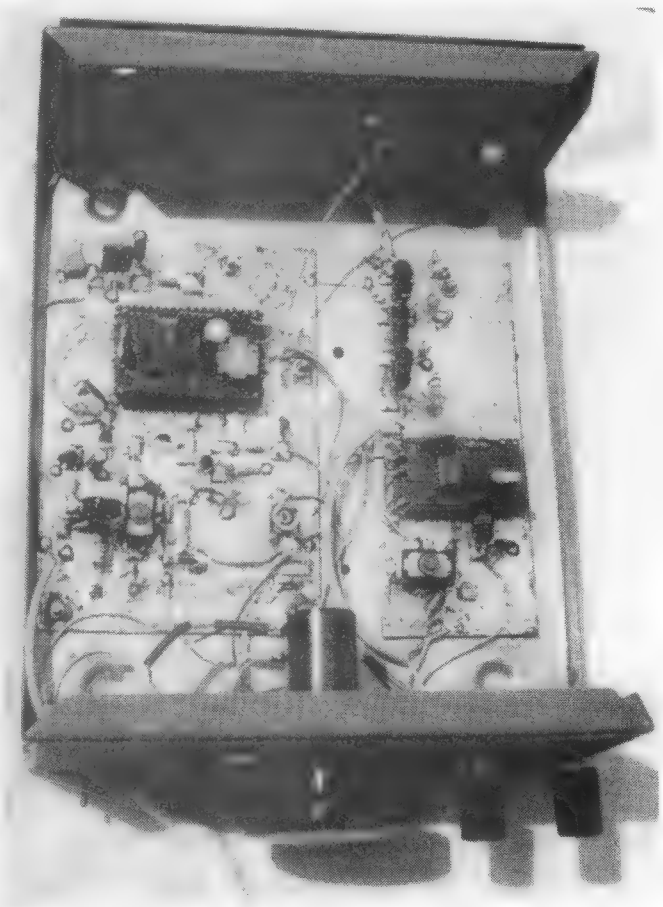

Photo 2 WBR Receiver Interior.

RF choke with a resistor. Several values between 10Ω and 100Ω were tried. As with the RF chokes, there was a trade-off between receiver gain and frequency pulling. Resistance values between 33Ω and 100Ω provided speaker reception of the louder DX signals. However values around 10Ω made for easier adjustment of the RF gain control. However this control is not essential and tends to be run 'flat out' at all times, Not using or omitting this control would make interaction less troublesome than might initially be thought.

With any of the above substitutions for ZI the completed set is a joy to use, particularly with CW and SSB signals. In operation it feels more like a direct conversion receiver than a regenerative. It breaks into oscillation smoothly with a gentle hiss, and there are no ear shattering squeals. The regeneration is more or less a 'set and forget' adjustment and does not need to be adjusted, even when tuning across the receiver's full 7.0 – 7.2 MHz range. It is certainly one of the best regenerative receivers I have ever built.

Photo Two shows the interior of the set. The receiver proper occupies the left of the picture. It is built paddy board style, except for the audio amplifier that is mounted on a small board. On the right is an unfinished converter for eighty metres. This uses an NE602 oscillator/mixer. A local oscillator frequency of 10.7 MHz (crystal obtained from a dismantled crystal filter) provides backwards tuning of 3.5—3.7 MHz. A 4MHz pi network on the converter's input prevents IF breakthrough at 7 MHz and image reception of 17.5 MHz broadcast signals. Otherwise the converter circuit is conventional and can be found in numerous articles.

Conclusion

The WBR is a novel design capable of excellent performance. However the circuit as published requires work to bring its sensitivity to an acceptable level. Fortunately the modifications are easy and it is possible to combine stable performance with good sensitivity.

References

1. Wissell, WBR Receiver, QST August 2001
2. Sones, Technical Abstract, AR January 2002
3. Parker, DC 2000 Receiver AR October 2001

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The P & SWR meter

Kees Heuvelman, PA0CJH
Breugel, Netherlands.
translated by Bill Beyer VK3BHW

The Power and Standing Wave Ratio Meter is a measuring device that indicates transmitted power to the antenna cable. The power indicated is the effective power that is radiated by the antenna, ie the output of the transmitter minus the reflected power from the antenna. Note that antenna and feeder line losses are not taken into consideration.

Power is read from a moving coil meter with a linear scale, with power ranges of 10, 20, 50, 100, 250 and 500 watt, a power level of 1 watt can be read with reasonable accuracy.

The device sports a "hold" (peak facility) so that peak power is indicated which facilitates SSB tests. As with most SWR meters the "voltage reflection coefficient" is measured, (Rho), that is the ratio between the reflected voltage and the voltage going to the antenna from the transmitter. In this instrument that ratio is calculated so there is no need to the usual setting up to "set" in forward mode and then switching to reverse.

Because of the ratio calculation circuitry a "hold" facility is not required, although the voltage amplitudes can vary the ratio of the voltages at certain conditions remains the same. When the voltage becomes too low for reliable readings the SWR sections is switched off to prevent false readings.

The frequency range of the device described here runs from 1.6 to 60 MHz

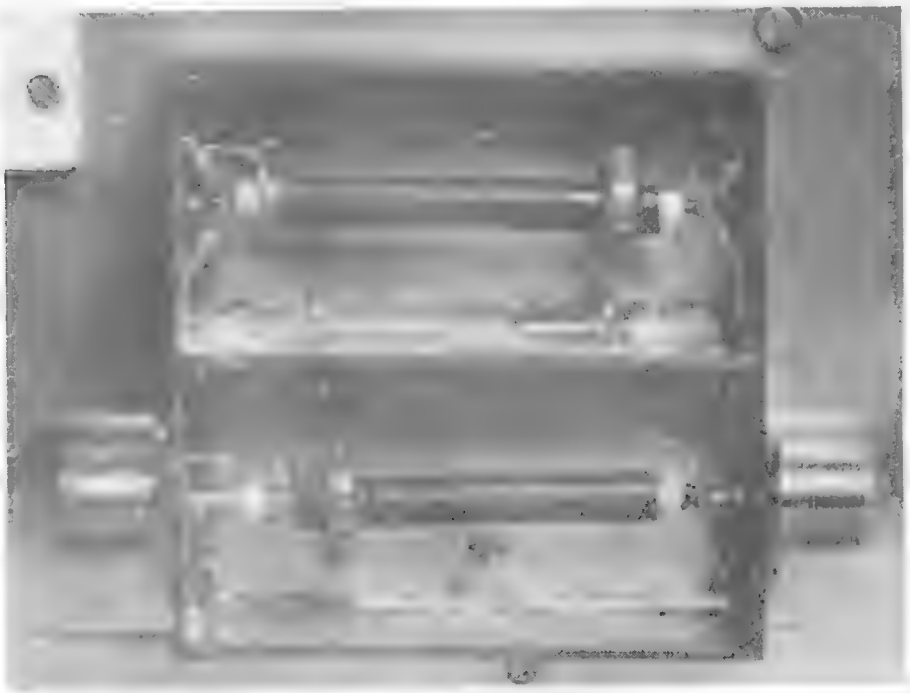

Photo 1. Inside view, directional coupler

Photo 2. View of front panel

Block Diagram

Many designs of power and SWR meters have been published over the years. This design is based on an idea of John Grebenkemper, KI6WX, and is to be found in "ARRL Antenna Handbook" amongst others. The meter described here differs on a number of points.

The P & SWR meter starts of with a directional coupler. It is placed in the feeder between the transmitter and the antenna. The coupler generates two ac voltages; derived from the forward and reverse power, Vfwd and Vrefl . A voltage of 7.07 V equals a power of 500 W.

The voltages Vfwd and Vrefl are each applied to individual amplifiers. The amplifiers have two functions, namely voltage amplification and correction of the nonlinearity of the diodes in the coupler section. It must be possible to change the amplification because at a power level of 500 watt the output voltage of the coupler is a factor square root (500/10) higher than at 10 watt. Thus the amplification can be changed to suit 10, 25, 50, 100, 250, and 500 watt full-scale.

The correction function of the amplifiers is to compensate for diode characteristic, which comes into play especially at low power levels. For this reason, Schottky diodes are used having low forward barrier voltage.

The output voltages of the amplifiers are named Vf and Vr respectively. As power equals the square of voltage ($P=V^2/R$) the forward voltage and the reflected voltage are squared so that the outputs are the function of the power applied to the antenna. In the following blocks of the circuit the difference of the two powers, forward and reverse is determined, so that we finish up with the actual power radiated. Note that the feeder and antenna losses are not seen by the P&SWR meter.

In the last block of figure 1 the reflection coefficient Rho is determined. The Standing Wave Ratio follows from SWR=(1+Rho)/(1-Rho).

When Rho = 0 meter deflection is also zero and the SWR = 1 and with total reflection Rho=1, and the SWR is infinite and the meter is full scale. Therefore the moving coil meter being a linear instrument needs to be corrected for meaningful SWR readings.

The scale will look as follows;

Deflection %	SWR
0	1
20	1.5
33.3	2
50	3
60	4
66.7	5
82	10
90	20
96	50
100	Infinite.

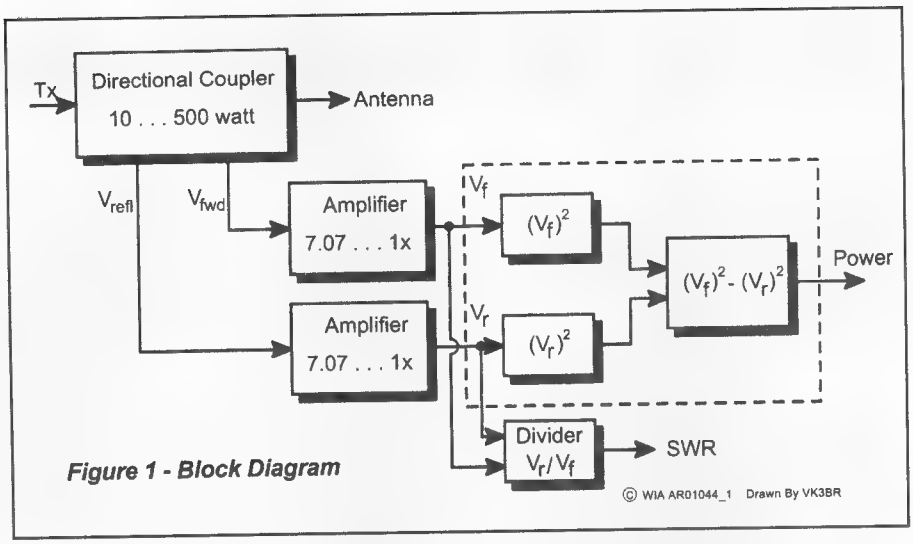

Figure 1. Block diagram

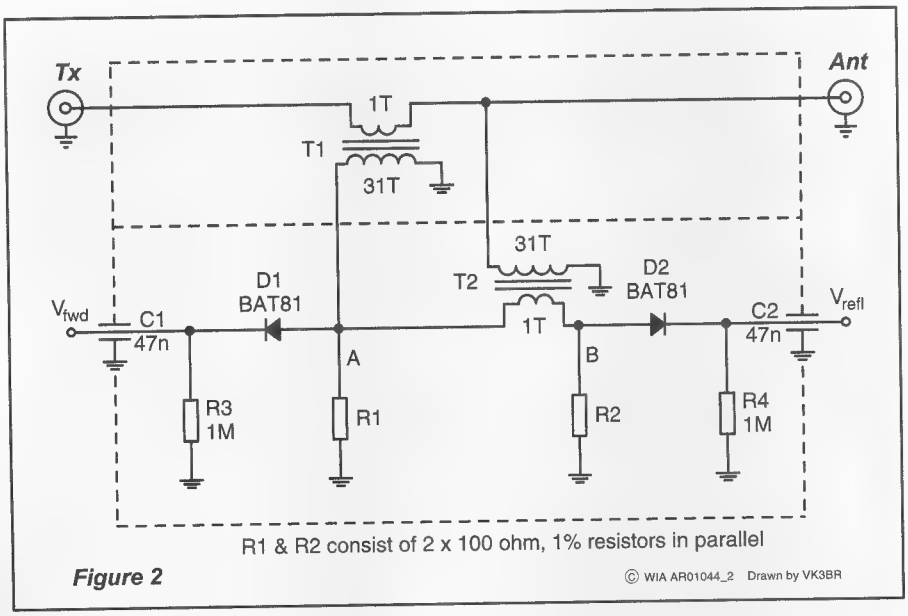

Figure 2. Directional Coupler

The Directional Coupler

Drawn in figure 2 is the directional coupler. The coaxial sockets TX and ANT are connected by a piece of 50-ohm coaxial cable. The braid is only earthed at Tx. A ring core T1 with 31 windings is slid over the coax. This forms a current transformer reducing current 31 times.

Fixed between points A and B is a second piece of coax terminated on either side with 50 ohms (resistors R 1 and R2) and the copper braid earthed at B only. This coax also carries a ring core T2 that is exactly the same as T1, however this transformer acts as a voltage transformer, reducing the voltage at ANT (point B) 31 times. The voltages generated at points A and B are rectified by the Schottky diodes (BAT81) producing the DC voltages Vfwd and Vrefl and are in turn presented to the two amplifiers mentioned above.

Construction of the directional coupler

The directional coupler is housed in a small box measuring 85 x 85 x 28 mm, constructed of double sided PC board 1.8 mm thick soldered together at the edges. Inside a divider made of the same PCB is installed and soldered. In the upper compartment current and voltage are taken from the piece of AIRCELL 7 coax, with an OD of 7.4mm, the total length being 80 mm. AIRCELL 7 is used here as it matches nicely the inside diameter of the ring core; also the coax braid can be soldered without melting the dielectric of the coax. The coax is mounted between the two SO-239 connectors. The braid is soldered on the left side only, do not earth the other side!

The current T1 transformer slides over the left side of the coax. It is an iron powder ring core AmidonT68-2 (red), dimensions 17.5 OD, 9.5 ID and the secondary winding consists of 31 turns of 0.2mm posyn wire. (You could use enameled wire Editor) One side of T1 goes to earth, the other side goes via a through insulator (not a feed through capacitor) to the bottom compartment to point A. This bottom piece of coax is the same as in the top compartment and mounted on two stand-off insulators. Here, the braid is earthed on the right hand side and T2 is positioned on the right end. T2 is in all respects similar to T1; this is important for the accurate functioning of the coupler.

The lower coax is terminated at either end with 50 ohm made up of two resistors of 100 ohm in parallel. Diodes D1 and D2 are connected to feed through capacitors located at the back of the enclosure. The position of T1 and T2 determine the polarity of Vfwd and Vrefl. The simplest way is to build the coupler and find the correct polarity by trial and error.

The amplifiers

The circuit of these amplifiers (Figure 4) is almost directly taken from the article written by KI6WX. (Calibrating Diode detectors, QEX Aug. 1990). Each amplifier consists of 2 op amps (TLC27L2). The gain of the first op amp amplifies is near to unity; it has compensation for the non-linearity characteristic of the diode detector in the directional coupler. The compensation circuitry consists of R3, R4 and R5. The diodes of the directional coupler and the op amps should be matched as close as possible, and should be selected for equal voltage drops at a certain current. At 1 milliampre through each diode the forward voltages should agree within a few mV.

With the second op amp the desired amplification can be selected and measured between points Mp1 and Mp2, this can be done in 6 steps varying from 7.07 to 1.0 volts relating to the power ranges from 10 to 500 watt. This is done with the selector switch "Power Range". Zero setting is done with trimmer R7.

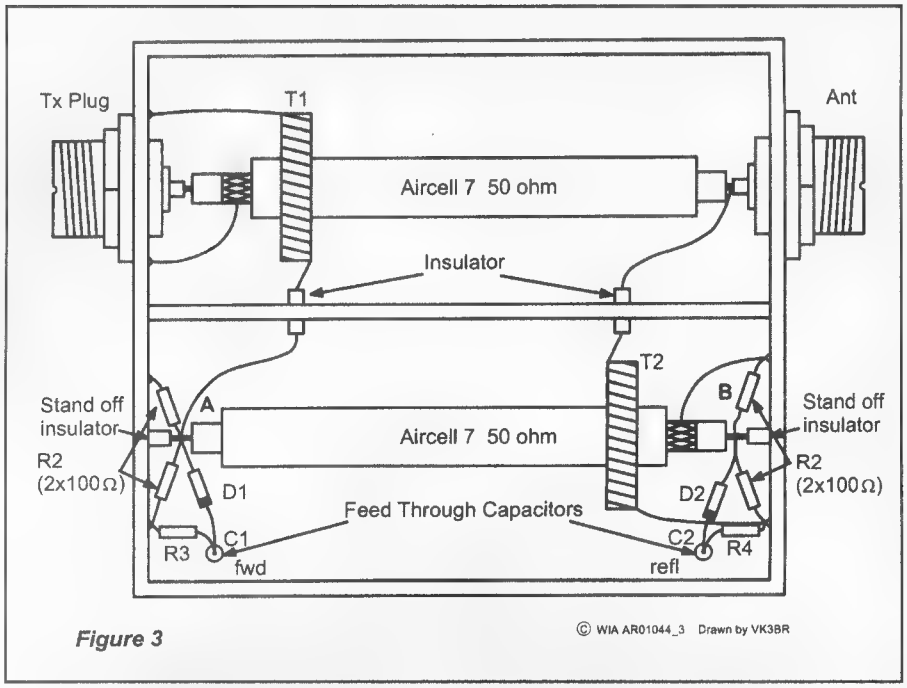

Figure 3. Directional coupler construction

This trimmer is fed with properly stabilized DC voltages of + 2.5 and –2.5 from 2 x LM336's. These are in turn supplied with 15 Vdc via adjustable current sources. Note that two of these circuits are required, one for Vfwd and one for Vrefl.

Power measurement

The circuit for power measurement (Figure 5) consists of two ICs type MC1595 and an op amp type CA3140E.

The MC1595 is a multiplier chip. When the two inputs are connected together it squares the input. The accuracy of the squaring is 2%. Motorola also manufactures the MC1495, which has an accuracy of 5%. In this circuit an error of 0.1dB and 0.2dB respectively would be incurred.

The CA3140E determines the difference of the two squares.

The switch Sk has three positions; position 1 coupled to the power (240

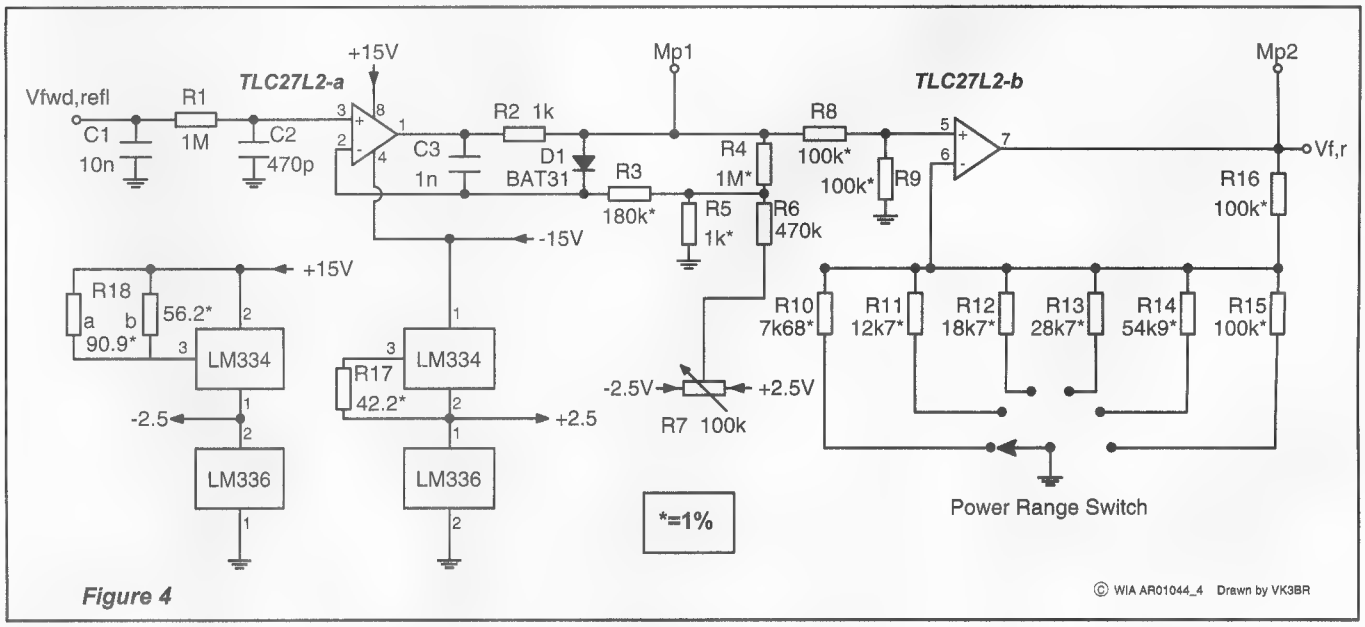

Figure 4. The amplifiers (2 required)

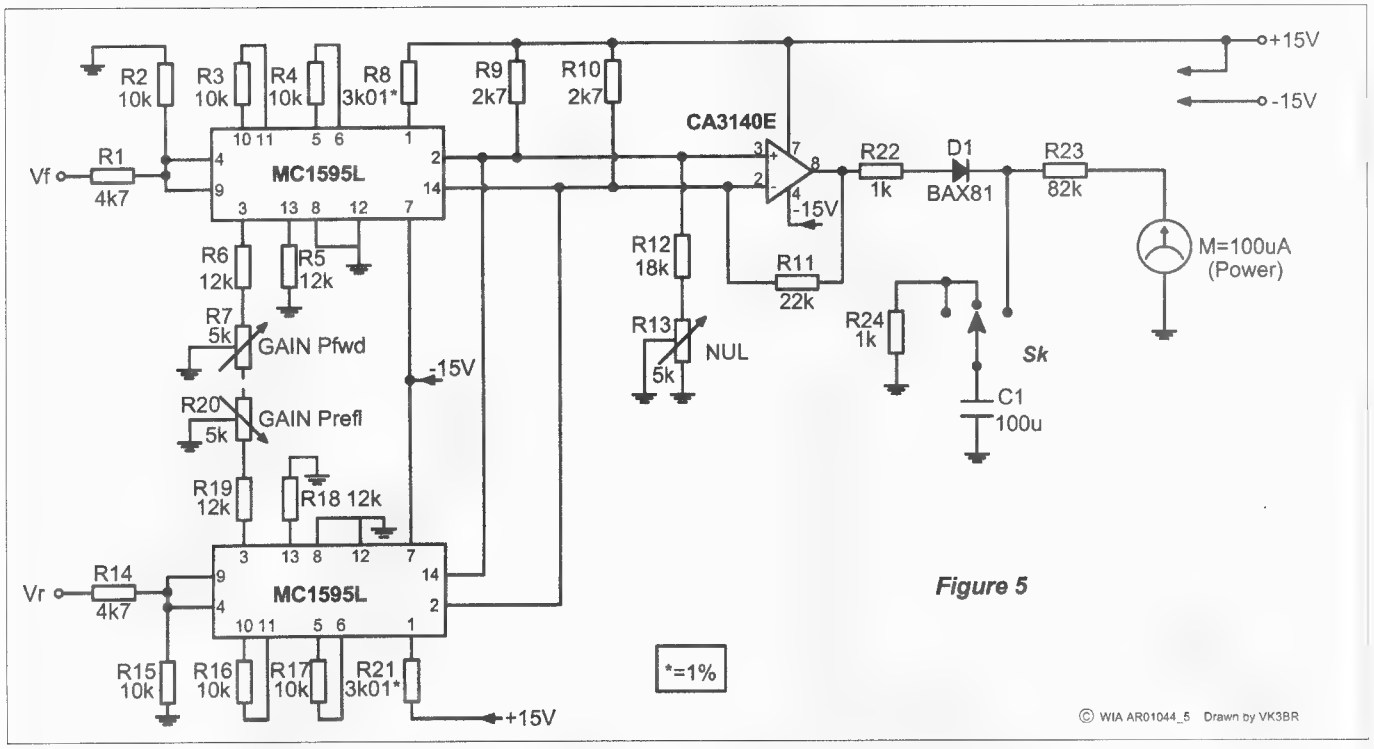

Figure 5

Figure 5. Power measurement

Vac) is the off position. In position 2 the meter follows rapid fluctuations, this can be used to tune the transmitter to a certain power level, usually the maximum power. Position 3 is the normal working mode, capacitor C1 is switched in to obtain peak measurement; through the diode D1, it is charged rapidly but discharges slowly through R23 and the meter. In position 2 C1 is discharged rapidly through R24. Position 3 works satisfactory for SSB, the radiated power can be read off more or less as a constant value while speaking into the mike.

The divider

To obtain the standing wave ratio the voltage Vr needs to be divided by voltage Vf. The result is the coefficient of reflection Rho. It would be possible to also use the MC1595 by using it as the feedback element with an op amp

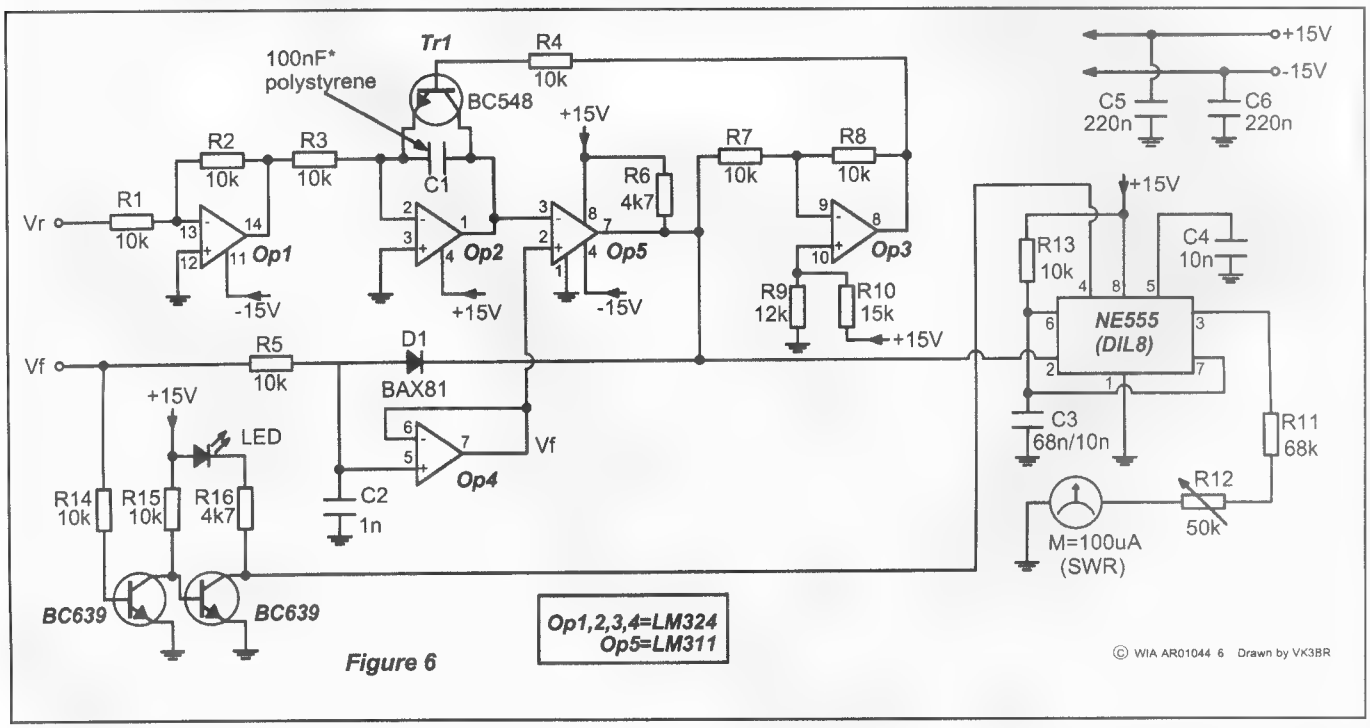

Figure 6

Figure 6. Divider circuit

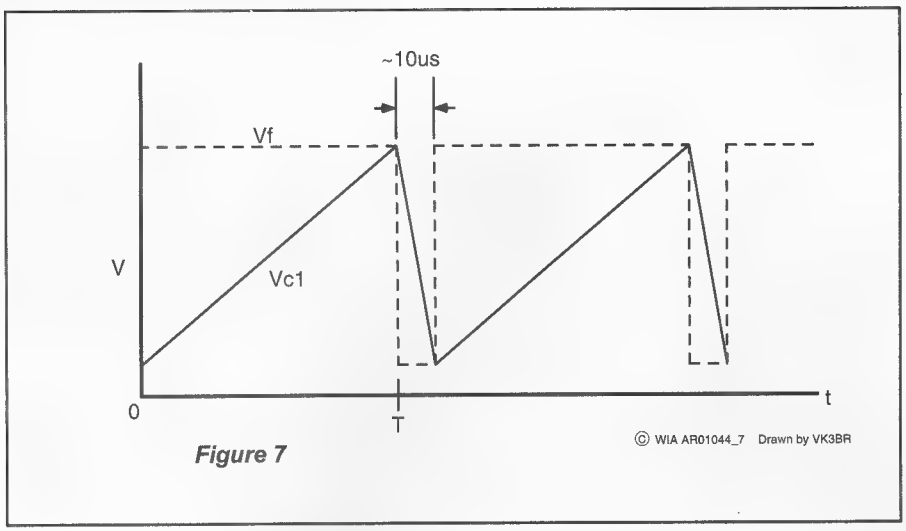

Figure 7

Figure 7. Timing diagram divider circuit

circuit. Experiments with this were rather disappointing; lots of fiddling required to get a satisfactory result. The stability was also a problem.

A better proposition is a voltage to frequency converter. With a V-f converter a voltage is converted by means of an integrating op amp to a frequency which is proportional to that voltage.

After some experimenting a very stable divider was designed and made with an accuracy of 1%, and no calibration is required (excepting the moving coil meter). The circuit of the divider is drawn in fig. 6.

The heart of the circuit is the integrator OP2 charging capacitor C1 with a current proportional to Vr, Tr1 discharges C1 at the instant when the voltage across C1 equals Vf; see fig. 7 C1 can only be charged when Tr1 is not conducting. The inverter op amp OP1's gain is –1 it supplies a negative current through R3 turning the output voltage of OP2 positive. When OP2's voltage exceeds that of OP4, that is Vf, (OP4 gain being unity), the output of the OP5 comparator will swing to 0 volts. Tr1 will be turned on via OP3 and C1 will be rapidly discharged. (Time T in fig. 7). To "lock" OP5 into a stable condition the input of OP4 is pulled to 0 volts via D1. Because OP3 and OP4 are relatively slow it takes some time (ca 10 microseconds) before Tr1 stops conducting. The two op amps are not required to be fast; otherwise C1 would not be discharged completely, affecting the accuracy of the circuit. On the other hand the comparator should be accurate and fast.

With C1 completely discharged the output of OP2 returns to a proper 0 volts, and OP5 will swing the other way and C1 will be charged again. At the output of the comparator a negative going pulse is generated every time "Time T" is reached. This pulse is applied to the NE555 configured as a monostable multivibrator. The NE555 generates an output pulse of fixed duration, about 9 mseconds, delivering a pulse train with a frequency of 1/T. The average voltage represents the frequency 1/T.

Calculation of time T.

The current, which charges C1, is Ic = Vr/R3

After T sec the charge of C1 will be Qc1 = Ic * T

and the voltage Vc1 = Qc1/C1 = Ic * T / C1 = Vr * T / R3C1

The comparator changes state when Vc1 =Vf

therefore T = (Vf /Vr) * C1 * R3

The output frequency therefore will be f = 1/T = (Vr / Vf) / (C1* R3).

The product of C1 and R3 is 1ms, so when Vr / Vf = 1 then f = 1000 Hz. At this stage the reflection coefficient Rho is 1 and the SWR is infinite, thus the meter should show full deflection.

When Vf is 0, (no signal) the division will be undetermined and the NE555 output will be uncertain. The transistors Tr2 and Tr3 measure Vf. When Vf drops below about 10 % of the maxim value Tr3 will conduct, the collector of Tr3 will go to 0 volts and the NE555 will be blocked, ie. no output. The LED will light up indicating a No-signal condition. This might be an indication to switch to a lower power range.

The supply

The P&SWR meter is supplied with + 15Vdc (40 mA) and - 15Vdc (25 mA). These voltages need to be stabilized with for example a LM7815 and a LM7915. The supply was built on a PCB; the amplifiers and the divider are placed on a separate PCB. The decoupling capacitors C5 and C6 (fig. 6) are also located on this PCB

Calibrating the P & SWR meter

The only requirement for setting up is an accurate, preferably digital, voltmeter.

Note: where a zero voltage input is called for, connect this input to earth to ensure a true zero voltage.

Directional coupler, fig. 2

As can be seen from the circuit, there's nothing to be calibrated. With a radiated power of 500 W the ac voltage can be calculated as follows; Vfwd = Root (P * R1) / N.

With P = 500, R1 = 50 ohm, and N = 31, Vfwd = 5 Vac (effective value). After rectification by diode D1 the dc voltage is Root 2 times the effective value 1.414 * 5.0 = 7.07Vdc.

This value is used for setting up the remainder of the P&SWR-meter.

The Amplifier, fig. 4

All that needs to be done is to zero the two amplifiers. This is done with R7, and the voltmeter connected to testpoint MP2. With no input voltages applied, and the Power Range Switch set to 10 watt, (max. gain) set MP2 to zero.

Powermeter, fig. 5

Start off with the null setting of the power meter, (moving coil meter), with R13. Again make sure that no input voltages are applied and switch Sk in position 2 (fast). Now apply 7.07 Vdc to the Vfwd amplifier and the Power Range Switch to 500 watt. Keep the other amplifier at zero input. With R7 (GAIN Pfw) set the deflection to 100%. Next, apply 7.07Vdc to the Vrefl amplifier and set Power output to 0% (with Gain Prefl); this should simulate that the outgoing energy equals the returning energy, total reflection and no RF radiated.

Divider, fig. 6.

When Vfwd = 0, there should not be any meter deflection and the LED should light up.

Continued on page 22

Education Notes

Brenda Edmonds VK3KT

Seeking "hooks" for new recruits

Thank you to those readers who provided some feedback on the idea of a low level entry licence. The idea seems to have quite a lot of support among the members, although thoughts on the required syllabus and the privileges to be offered seem to vary a lot.

I have been following the progress of the British Foundation Licence, but have not yet been able to examine a sample examination paper. The syllabus seems to be set about equal to our original Novice Licence, but it must be a lot simpler if it is intended to be covered in a weekend of study.

If we are to lobby for a low level entry, we must decide the purpose of the exercise. We currently have five levels of licence, although only four levels of privilege. Where is the need for another level?

As I see it, this licence will be an attempt to encourage more recruits into the hobby. We have been trying to increase recruitment for some years, and have not succeeded very well. The original Novice licence was very effective in recruiting. Our numbers rose markedly as a result of that licence being formalised just at the time when CB radio was starting to lose its initial charm, so we had large numbers of CB operators looking for a higher level of involvement. Some of these recruits have been active enthusiastic amateurs for over twenty-five years now. But now we do not now have CB as the initial "hook" to grab the interest.

As amateurs, we have all found the hobby to be absorbing, challenging, exciting, stimulating or satisfying. How can we pass on those feelings about the hobby to another generation of amateurs? Where do we find that new generation? How do we introduce new persons into the amateur field so that they will likewise experience its attractions?

For some years now we have stressed the need for increased WIA membership, but most of our publicity material has been directed at those who are already licensed. We need to direct some of our energy to publicising amateur radio to the general public, so that persons who have never heard of us become interested and look for information, and we must make it easy for people to access the information. We need a lot of ideas from readers about how to spread the word and get ourselves some useful publicity.

The low level entry has the potential to foster recruitment, but only of those who have heard of amateur radio elsewhere. We still need to find ways to attract the interest of those who do not know about us.

There are three groups of people we should be targeting.

1. Young folk; they are heavily involved with computers and could be approached through this addiction;
2. Those nearing retirement; it is an ideal hobby for retirement, and can add much to the years of persons of limited mobility;
3. Women (my favourite hobbyhorse); we have neglected half the population for too long.

We need clever advertising directed towards these groups, and we need to increase our normal general advertising. There is a place here for every member- go out this week and talk about amateur radio to at least five non-amateurs. Follow up with anyone who shows some interest. Invite them to your shack, lend them a copy of the magazine, take them on a foxhunt, but do something to get a new person interested. If each current member introduced one new candidate, very many of our long term worries would be over.

There is no point worrying about making changes to the structure of the WIA or the future of the magazine or changes to the examination systems if we do not have enough new recruits coming in to maintain the hobby, let alone the WIA.

The P & SWR meter *continued...*

Apply equal input voltages, say 5 Vdc. Set the SWR meter with R12 to maximum deflection, ie. SWR = infinite. By varying the inputs with equal voltages the indication should remain constant. Unless the input voltage drops very low and the LED should light up.

Post Scriptum

The P&SWR-meter does well under working conditions. At any instant the radiated power and the SWR can be read on the meters. Off course nothing can be done while in a QSO. On the other hand you can look for a portion of the band where the SWR is lowest, off course once you know that no further news. It is more important that you keep an eye on the meters and if something goes astray immediate action can be taken.

I've also had some thoughts to do the whole thing digitally, however a fair amount of complexity would be involved, but for the moment this setup is probably more suitable for the general amateur.

The described P&SWR meter works well from 1.6 to 60 MHz. I am now working on and testing another version with a working range from 1.6 to 440 MHz. The construction of this is a lot more difficult off course.

Finally I would like to thank Bob, ON9CVD (ex PA3FLU) for the interesting discussions we and for his valuable comments regarding this article.

NB, When you look closely at the Power meter it can be seen that the meter is not linear. It was donated to me by Bernhard PA0ES. It looked OK but it is not linear, and probably belongs to the moving iron type family). However a proper moving coil meter will do the job.
Kees, PA0CJH

**This article first appeared in the magazine "Electron" March 2001. "Electron" is the Dutch equivalent of "Amateur Radio" in Australia. It was written by Kees Heuvelman PA0CJH and translated by Bill Beyer VK3BHW*

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The Miracle Whip

Small QRP HF rigs have been appearing and have now been joined by the FT817 which gives 160 metre to 70 centimetres in a single small package. The need for a small antenna system covering as many bands as possible has produced a number of solutions. In July 2001 QST Robert Victor VA2ERY described a whip and loading/ matching arrangement which could be used from 80 metres through 70 centimetres. He called this the miracle whip. A commercial version has appeared and you can see it on the web at "miracleantenna.com" .

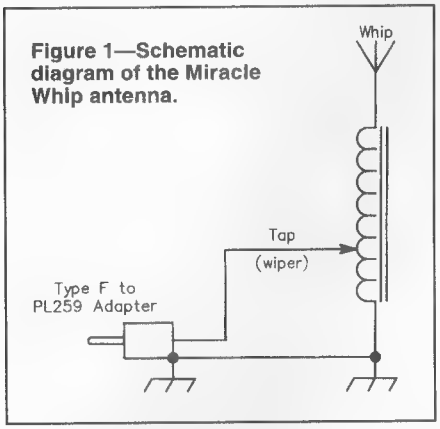


Figure 1. Miracle Whip Antenna Schematic

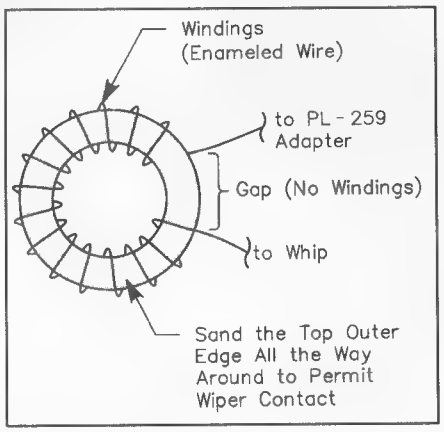


Figure 2. Winding on Ferrite Core. Use 60 turns #26 enamelled copper wire on a Palomar F82-61 ferrite core. Sand enamel on top outer edge to allow contact with wiper contact

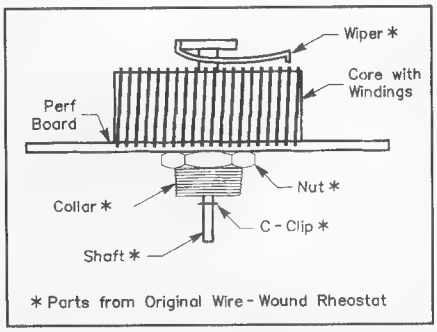


Figure 3. Modified Rheostat Assembly. Wiper and brush make contact with core winding

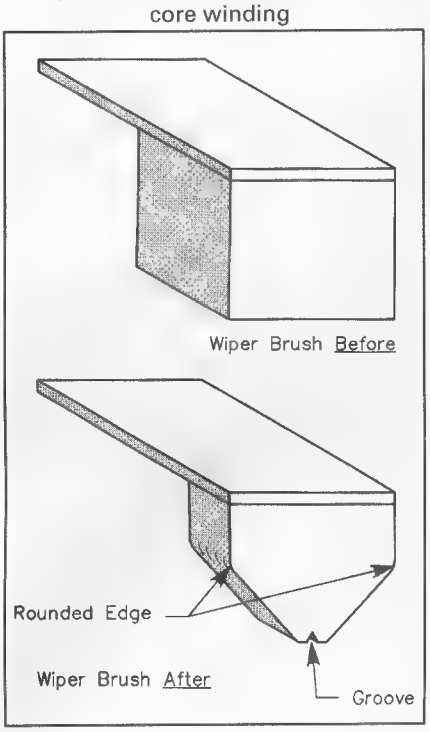


Fig 4. Wiper Modification. Wiper Brush modified by filing so as to only make contact with one turn of toroid winding at a time.

The antenna uses a 48 inch long telescoping whip. This can be adjusted for quarter wave resonance on the higher bands. The whip could be one sold as a replacement part or you might find one on a variety of items which have passed there useful life.

The whip mounts on a small plastic box which houses an adjustable toroidal inductor and provides a mounting for a male PL259 plug which can be plugged into the radio. The toroidal inductor acts as combined loading and matching components to resonate the whip with base loading and match it to the radio. The circuit is shown in Fig 1.

To adjust the toroidal inductor the shaft and wiper mechanism from a power rheostat are used. The resistance element which is wound on a ceramic toroid is removed and is replaced with the toroidal inductor wound on a ferrite core. The ferrite core is a Palomar F82-61.The ferrite core with the winding is glued to some insulating perforated board as a mounting. See Fig 2 and Fig 3. The toroid is wound with 60 turns of #26 enamelled copper wire. The top outer edge of the winding is sanded to remove the enamel and enable the wiper to make contact. The wiper assembly is modified so as to contact one turn at a time. See Fig 4.

The output connector is a panel mounted PL259 male plug. It is hard to find and a PL259 male to female F connector has been used. The F connector female socket is threaded and this is used with a suitable nut to hold the adaptor to the panel providing a PL259 male output. The connection to the inner of the type F connector can be by using the inner conductor of a scrap of RG59 style TV coax inner conductor. This just pushes in and is the normal pin in a type F connector. The PL259 to type F adaptor was obtained from RadioShack which is Tandy in Australia. The part number is 278-258. You may find this works in your local Tandy shop.

In operation the adjustment of the whip length and the tapping point provide a match to the radio. Adjust the tapping point to find a noise peak and then fine tune the whip length. After peaking on receive use the rigs inbuilt SWR meter to get the best adjustment. Robert VA2ERY was able to approach 1:1 on 20,15,and 10 and obtained close to 2:1 on 80 and 40. On the VHF/UHF bands the inductor shunts the feed by setting at the top turn and the antenna length adjustment peaks the antenna. The inductor has virtually no effect on the VHF/UHF bands.

Technical Abstracts

Antenna Tuning Unit

A simple antenna tuning unit based on the original design of Doug DeMaw W1FB appeared in Break In Nov/Dec 2001. It was designed by Kelvin Barnsdale ZL3KB and had previously been published in HamLarks.

The design is the SPC Transmatch. The circuit is shown in Fig 5. Capacitor C1 is 200 to 300 pF maximum and C2A and C2B are ganged capacitors of similar capacity each gang. Receiving type capacitors ma y be OK up toward the 100 watt level. However wider spaced capacitors would be preferable.

The coil L1 consists of 24 turns of 18 gauge wire 45mm long on a 38mm form. Plastic pipe can be used for the former. Tappings are at 12 turns for 80mx, 18 turns for 40 mx, and the full coil of 24 turns for 20 mx. Coil L2 is 5 turns of 14 gauge wire 20mm long on a 20 mm diameter and is mounted at right angles to L1 on the back of the selector switch. The taps on L2 are 2 turns on 15 mx, and 3 turns on 10 mx with a full winding of 5 turns.

The capacitors are insulated from ground and so the shafts must also be insulated from ground and the operator. Slow motion drives are nice but not essential.

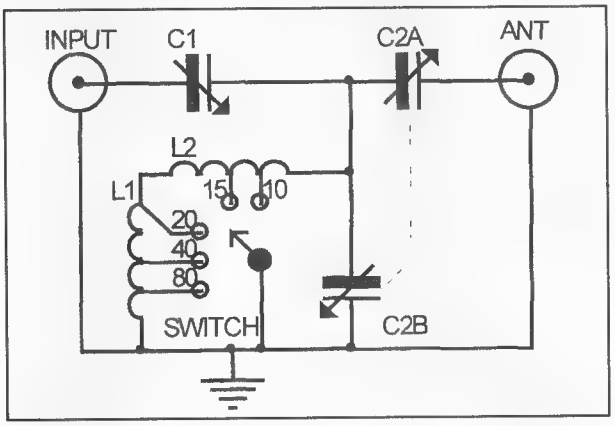
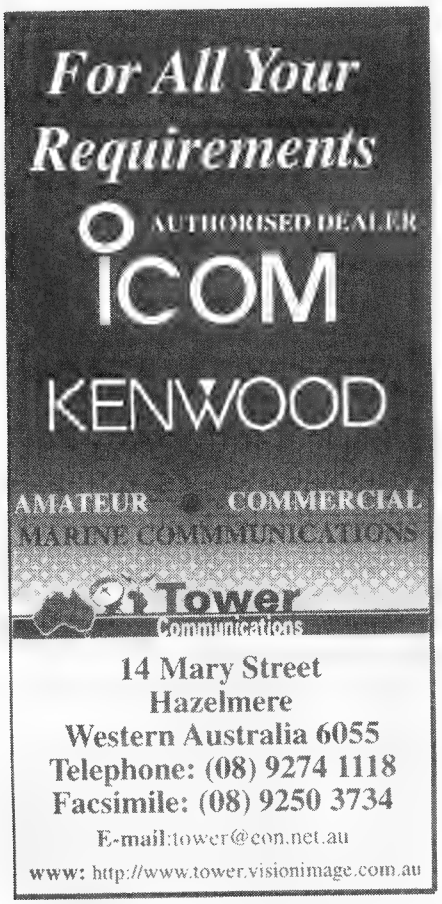


Fig 5. Antenna Tuning Unit.



VFO Temperature Stabilisation

A means of stabilising a VFO by keeping it at a constant temperature appeared in Rad Com November 2001. The idea came from R G Dancy G3JRD who used a simple controller circuit and heating pad to keep an FT101 VFO at around 26 degrees C. This was sufficient to improve stability particularly when the shack temperature was somewhat lower. This may not be needed or be a viable option in some parts of Australia.

The heater pad was made by setting 10 500 ohm 5W ceramic resistors in a bed of car exhaust repair paste. This baked hard after a short time giving a heating pad which was about 3 in x 4 in x 3/8th in thick. This was sat upon an aluminium tray raised just above the bench beneath the bottom of the FT101 transceiver. There was a gap between the top of the pad and the bottom of the transceiver.

The paralled resistors in the pad with a combined resistance of 50 ohms were connected to the controller shown in Fig 6. The Negative Temperature Coefficient Thermistor was fastened inside the transceiver just below the VFO and above the heating pad which is beneath the transceiver case. A remote reading temperature indicator was used to monitor the temperature inside the case with the sensor adjacent to the VFO and the readout outside the case. The temperature setting control was then adjusted so as to maintain a constant 26 degrees or thereabouts.

The parts are not critical and could be adapted to suit what is available. G3JRD leaves the heater on all the time and so minimises warm up drift.

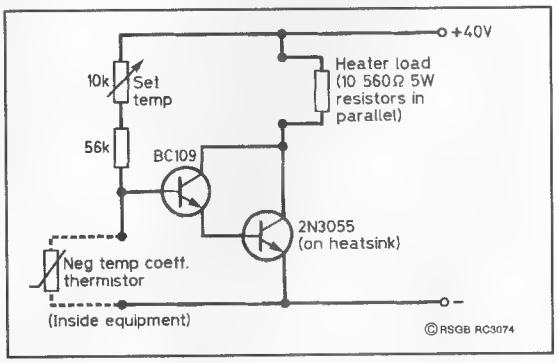


Fig 6 Temperature Controller Circuit Diagram.

News from the Moorabbin & District Radio Club

Peter Parker VK3YE, Publicity Officer
Moorabbin & District Radio Club
parkerp@alphalink.com.au (03) 9569 6751

AMSAT Meeting a success

February's talk by AMSAT North America chief Robin Haighton, VE3FRH was a huge success attended by nearly ninety amateurs from all over Victoria and interstate.

Officially welcomed by VK3 WIA President Jim Linton VK3PC, Robin spoke for more than an hour on the Phase3D/AO40 project, in addition to future AMSAT projects now in the planning stages.

Thanks to the technical contributions of a number of club members, overhead video projection and good quality audio was provided, to ensure that we all saw and heard every detail of Robin's excellent talk.

David VK3JDA was also on hand recording everything for ATV which will doubtless be seen fairly soon.

Audio was also being recorded by Andrew Rennie from 88.3, Southern FM, and will be featured in Andrew's popular Space in the near future.

Robin had also brought with him a number of T-shirts featuring AMSAT logos which were auctioned to an eagerly bidding audience. The funds raised, (around $150) are to be donated to the VK arm of the AMSAT organisation. As auctioneer Robin proved to be of no mean talent, with the whole process adding to the enjoyment of all.

The MDRC catering was also equal to the task with refreshments provided after the talk. A most entertaining and instructive evening was the official verdict of all who attended, and we thank Robin again for fitting us into his busy schedule.

Thanks also to Jim Linton for his help, and to all our amateur friends for coming along to make the night a great success.

APC News now on 7MHz

To increase the reach of APC News, a 7 MHz service was added earlier this year.

The relay, performed by Graeme VK3GRL, has attracted callbacks from around south-eastern Australia. We expect it will be popular with VK3s on the move and interstate amateurs wishing to keep up to date with the latest via a midweek bulletin.

APC News goes to air 8pm each Wednesday and can be heard on the following frequencies:

1.843 MHz AM
3.565 MHz LSB
7.065 MHz LSB
29.640 MHz FM
53.575 MHz FM
146.550 MHz FM
438.750 MHz FM

Items for inclusion in APC News can be sent to keith@lcd.net.au or parkerp@alphalink.com.au . If you wish to contact the news team on the air, try calling on 146.550 MHz or 53.900 MHz VK3RMS repeater.

AR in the papers

Amateur radio got its best publicity so far this year with articles appearing in The Age and its sister paper, the Sydney Morning Herald.

The 600 word article was titled *Ham On the Web*. Published in the February 12 edition of the two papers, it describes how radio amateurs are using Internet Radio Linking to extend communications worldwide.

The story features well-know IRLP identity and Moorabbin District Radio Club member Tony Langdon VK3JED. It describes the worldwide capabilities of IRLP and how it compares with I-phone. Other amateur activities mentioned include the conversion of ex-CFA equipment and tram mobile satellite communications.

Overall, the article positively portrayed modern amateur radio and is a credit to both its writer Barry Park and Tony Langdon.

Radio on Rails this month

Yes, it's on again! Two metres and seventy centimetres will again be full of signals from tram and train mobile stations during this year's Radio on Rails Fun Day on Sunday April 14.

Radio on Rails encourages amateurs to operate from trains and trams around Melbourne. Participants get to experiment with VHF/UHF portable equipment and antennas and demonstrate amateur radio to the general public. Entrants also meet other contestants, thanks to the unique 'eyeball contact' rule. Sections exist for both radio amateurs and listeners.

The rules for *Radio on Rails* appear below. The only change this year is that contacts made via internet radio links are not valid for scoring purposes. However this rule may be reviewed next year with consideration given to making Radio on Rails a national event. Both home and train/tram mobile stations may enter. Participants are invited to meet for lunch afterwards at a city venue to be arranged on the day.

continued next page

MDRC Radio on Rails Fun Day Rules

Object: To make amateur radio contacts from trains and trams around Melbourne.

Date: Sunday, April 14, 2002

Time: 9am-1pm

Bands: 433.000–440.000 and 145.225–148.000 MHz only

Mode: FM voice

Sections:

A. Transmitting Mobile (in train or tram, also includes waiting at railway stations or tram stops)

B. Transmitting Home (includes operators at home or in a car)

C. Listening Mobile (in train or tram, also includes waiting at railway stations or tram stops)

D. Listening Home (includes listeners at home or in a car)

Contacts: Train or tram mobile stations may work (or hear) any station for points. Home station entrants may work (or hear) train or tram mobile stations only for points.

Repeat contacts: Repeat contacts are valid for scoring purposes provided at least one hour has elapsed between them. In most cases, stations may be worked *once per hour per band*. The exception is for contacts via crossband 2m/70cm systems, such as the VK3RMN repeater, or satellites operating in full duplex. In these cases, repeat contacts are permitted, but stations may only work each other *once per hour, irrespective of band.*

Use of repeaters, satellites and internet radio linking: Contacts on repeaters and satellites count for scoring purposes. Because IRLP and I-Phone links are not intended for contest traffic, contacts via internet radio links do not count for scoring purposes.

Exchange: Train or tram mobile stations give their nearest railway station, tram route number or tram stop location (if waiting). Home stations give their suburb. No serial numbers are required.

Eyeball contacts: Stations in Sections A and C may claim extra points for 'eyeball contacts'. An eyeball contact is defined as one where participants can shake hands with one another on a train, tram, railway station or tram stop.

*Prearrangement of eyeball contacts before the contest start time is **not** allowed.* However, eyeball contacts may be arranged during the contest period on two metres or seventy centimetres FM only. Unlike with radio contacts, entrants cannot claim extra points for repeat eyeball contacts with the same person. Amateurs or SWLs not active in the contest cannot be claimed as eyeball contacts.

Scoring: Score 1 point per station worked (or heard) on each band. Total score is the number of radio contacts made (or stations heard) on all bands plus the number of valid eyeball contacts made.

Logs: Logs should show time, frequency, callsign and exchanges for each contact. Eyeball contacts should also be logged. Train or tram mobile entrants should staple their used Met ticket to their log. Where this is not practical (eg ticket remains current after the contest), a signed photocopy of the ticket will be accepted in lieu.

Logs should be posted to *Radio on Rails*, MDRC, PO Box 58, Highett, Vic, 3190. Logs should be received by 10 May, 2002.

Certificates: These will be awarded to the first three placegetters in each section. Other entrants will receive participation certificates.

Results: Results will be announced in the WIA's *Amateur Radio* magazine and on APC News.

MDRC Hamfest next month

A reminder that the MDRC's Hamfest will be on Saturday May 11, starting 10am. The venue will be the same as last year-the Brentwood Secondary College in Watsons Road, Glen Waverley (Melways 71 D7). Enter off Heath Street.

Lee Moyle VK3GK has offered himself as hamfest organiser. If you'd like to book a table, contact Lee on 9705 1051 (home), or 0429 810 101 (mobile). Tables will be allocated on a first come first served so be quick.

The MDRC Hamfest has become Melbourne's most popular hamfest. Over 400 people attended last year. Don't miss it!

Adelaide Hills Amateur Radio Society

It was the AGM for AHARS in February. It was as well attended as usual. The executive, Geoff Taylor as President, Lloyd Butler, Alby Woods as Secretary and Bryan Trott as Treasurer is unchanged with Geoff Bridgeland, John Elliott and Jim Tregellis as committee members.

Following the AGM Steve VK5AIM took the floor and both entertained and informed members about rotators, their similarities and their differences. Starting with the simplest, "Armstrong" rotator, graduating via one turned by a rope through the wall and finishing up with the best and strongest designs capable of controlling the biggest beams, Steve discussed them all.

He drew some circuits suitable for use for indicator systems and he highly recommended that a plug and socket be used in the cable from the antenna to the shack. There can be nothing so daunting as the sight of two cable ends, each with five or six or maybe eight different coloured wires to be connected correctly. If you use a plug and socket you only have to know once which wire does what at the top and at the bottom.

Have you bought an antenna system and been told when you asked about the cable, have you been told

"Oh we just cut it off where it went through the wall". Steve has. Not very helpful.

An interesting lecture.

Bass Amateur Radio IRLP Group News

Graham VK3JBO

Like all beginners who first hear the IRLP in action it blew us away. Neil VK3TNB, Mark VK3UAE and I made further enquiries and eventually, with the help of Tony VK3JED, on Monday 27 August 2001 at the QTH of VK3JBO, Rosebud, Victoria, the Bass Amateur Radio IRLP Group was formed

Neil had purchased the IRLP board, radio, computer, router, aerials and the ADSL line. After a couple of days everything was fitted and attached and the tests began. I received a signal at my QTH (VK3JBO). The frequency was 146.475 MHz, simplex on the 2 metre band.

We approached the ACA and WIA and approval was given to use the Node on 2 metres, for identification, the node was to use Neil's call sign, VK3TNB. Contacts began around Australia and overseas. Congratulations flooded in from other nodes, operators and fellow hams. Reports on the signal were excellent.

After three months I received the phone call we were waiting for, from the WIA Vic, giving permission to use the Arthur's Seat Repeater on 70cm 439.725 MHz with negative offset. Neil and I climbed a ladder to change the antenna, then back we went inside the house to change the frequencies. Neil pressed the mike button and announced, "This is VK3TNB testing IRLP node 633 via VK3RPU Arthur's Seat on the Mornington Peninsula Victoria...". The test signal was received perfectly and we became the first IRLP in Melbourne on the air in the 70 cm band.

Yes there were problems. First the provider line, then after six weeks on 70cm the repeater, started to break down and finally died. Guess it couldn't handle the heat! I ask all members to be patient when using the IRLP and remember to leave a 4-5 second pause between transmissions or breaks.

We cannot go any further without saying thanks to Tony VK3JED for his assistance.. Also to Neil VK3TNB for his generosity to the group. Thanks to the ACA and WIA Vic for their prompt responses, assistance and courtesy. WIA Vic has openly stated that they are very supportive of IRLP activities and experiments

Novice Operators

Good news from the ACA. Novices (limited, no Morse) can use the IRLP even though the signal may be out of band in another country due to the mode/method used. The signal may even be retransmitted on the 1.2 GHz etc. Once the signal leaves VK jurisdiction it becomes the responsibility of the country the signal is received in. Out of band use still applies under VK jurisdiction.

Members are requested not to use the reflector nodes when normal node connections can be used. (This applies to our node only). When we use the reflectors regularly we prevent other amateurs using the repeater for its intended mobile use.

Importantly, if you use a node, downlink it when you are finished. The authorities have stated strongly that the IRLP must be monitored at all times when connected.

ar

Gordon William Lanyon VK2AGL,1920 to 2002.

Hams who tune the lower end of the 40 metre Band will have noticed the absence lately of one of its most active occupants VK2A6L. It seemed that at almost any time of day Gordon would be around ready for a ragchew or to offer help if there was some difficulty in establishing a QSO. There was no need to wait for his Callsign, as his 'fist' was enough.

I first met Gordon January 1940 when as R.A.A.F. recruits we started on Nr. 19 Wireless Telegraphist course at 1 School of Technical Training. Our Barracks were a condemned old building in Latrobe Street Melbourne. We slept on straw-filled palliasses on the bare wooden floor. I shared with him the nine month course the latter half of which was done at the more salubrious Point Cook Signals School. On graduation we were posted to 11 Squadron Port Moresby travelling there on the S.S. Macdui later to be bombed and wrecked in the harbour. Gordon was first put on to Aeradio VZPY watches before becoming W/T Operator on one of the four C Class Flying Boats that had been taken over from Qantas. His aircraft became heavily involved in evacuating personnel from Samari Rabaul and other outposts.

In 1942 Gordon became WIT operator in the crew of Air Vice Marshall Jones. He held that exalted post until his discharge in December 1944 after five years service and 1746 flying hours. He rose to the rank of Flying Officer.

He then joined Qantas Empire Airways as a Radio Officer being put on to the Perth/Colombo flights. These became known as the "Double Sunrise" trips as they started before sunrise and finished the morning of the next day. Average flight time was 28 hours. There was a second leg to Karachi, another 14 hours of night flying. Aircraft used were Catalinas and Liberators. Gordon returned to routine flying with QEA late 1945.

In February 1958 he crewed in the Royal Flight of Queen Elizabeth which "lost" an engine between Cocos and Mauritius. His comment later "Radio was busy"

The RO became redundant in 1960 and Gordon became Navigator and flew as such until retiring in 1974. He returned in 1976 to fly for Papau New Guinea Airline as RO/Navigator for one more year managing a little Amateur Aeronautical Mobile with his recently acquired Callsign at the same time .1 remember working him this way. In his career Gordon flew over 21,000 hours. As a Radio Amateur his loss will be greatly felt.

Cul Gordon tks. VK2BKH.

ALARA

Christine Taylor VK5CTY
vk5cty@vk5tty or geencee@oicknowl.com.au

GOTA: Guides On The Air

We all know about JOTA, Jamboree of the Air. Many of us assist scouts and guides to participate but few of us have heard of GOTA until now.

Many guides do share in the fun of JOTA but in this country not many have previously used radios for GOTA. The activity is linked to Guides Thinking Day, in which VK guides do share, which is held each year in February.

After the events of September 11th the important role amateur radio can play has been recognised everywhere, but particularly in the USA and Canada, so much closer to those events.

ALARA was introduced to GOTA through an item in our January Newsletter. I was also sent an email by Norma VK2YL (ALARA'S first President), alerting me to the fact that she was organising a station at her mother's QTH (Bobbie VK2PXS) for the occasion, so I could tell the VK5s to listen for the station.

Through Faith VK5HFC who is the Guide Co-ordinator for radio activities, I did just that BUT there was a massive storm (one of a number this year) in VK2 that week. The storm completely demolished Bobbie's antenna but fortunately did not damage her house. However, this meant that Norma was unable to participate.

I do hope some people did manage to run stations for their local guides and I hope you managed to have some contacts

However, whatever happened this year, I suggest you make a special effort to set up a station for some guides. It is great to show boys and girls what amateur radio is all about but it is even better if it is a YL station that they are using when it is a guide activity.

Think about it for next year!!

Instant power for mobile phones or laptops

There was a small article in the March 2nd issue of "New Scientist" that struck a chord. Someone has developed a thing (no, it is not yet on the market) that acts rather like the Traeger Pedal radios. There is a foot pedal about the size of a paperback which you pedal for five minutes to give you enough stored power to run your laptop for about 20 minutes, or your mobile phone for much longer.

What a brilliant idea for those times when you find yourself with a "dead" electronic device and with no convenient power point (or when you have left the charger at home).

It will apparently be called a Stepcharger and is said to cost $150 (may be US dollars). Watch for it at your local electronic store.

Have you booked your accommodation yet?

Have you booked accommodation for the ALARAMEET 2002 in Murray Bridge? Have you notified Jean VK5TSX which activities you would like to share? She would like to have the Notice of Interest forms in as soon as you make up your mind. She will let us know when she needs your deposits in the next Newsletter.

It will be a fun weekend. There is very little formal business but a lot of informal talking. Registration is on the Saturday morning 5th October at the Community Centre/Boat Shed in the main street, but there will be an informal meal together on the Friday night for early arrivals.

A paddle steamer trip is organised for the Saturday afternoon with a fully catered dinner that night at the Racecourse. We will tour the Monarto Zoo in a bus, with a guide to tell us all about the animals and the open range zoo there.

A visit to Old Tailem Town has been arranged for Sunday afternoon with dinner at (Crocodile) Dundee's (there has been a name change back to just Dundee's but the whole name is more interesting) that evening.

For those still there on the Monday a whole day bus tour has been arranged that will include a winery, a trip on a steam train (we hope) and/or a ride on the horse tram our to Granite Island at Victor Harbour. We finish up that evening at Mount Lofty looking out over the city of Adelaide.

A smaller tour has been arranged for the Tuesday, to a bush block where hopefully there will be wild kangaroos, and certainly some colourful parrots on show.

Do join us. While many of the YLs there are amateurs there will be others who are not. While most of the OMs will be amateurs there will be some who are not. Whatever your interest outside amateur radio there will be someone there that weekend who shares your interest. Do come. Do plan your holidays to include that weekend in Murray Bridge, or just come for the time itself.

Mini DXpeditions

There will be a mini YL dxpedition to Lord Howe Island VK9, in Mid September–just before the ALARAMEET. This will cover the Spring Equinox in the Southern Hemisphere so the bands should be good. Then some of those YLs will go to another Pacific Island (the name of which is secret, just now) for a further 2 weeks.

If you can't participate (or even if you can) in the ALARAMEET listen out for the VK9 stations and make some rare DX.

Palermo International YL Meet

Several VK5 girls are going to this meet. Some will be joining the tour before the meet, or the follow-on tour. It sounds most exciting and colourful. Those of us who cannot go will be with the participants in spirit and we look forward to hearing all about it .

Our very best wishes will be with everyone in Palermo towards the end of June.

Spotlight on SWLing

by Robin Laird Harwood VK7RH

49 metre surprises!

The first quarter of the year has already slipped by and personally I find that I am having less time to actually listen, since I moved into this retirement village. I do have a very temporary antenna but the performance is best after nightfall. I am still hoping for an outside aerial to improve my monitoring activities. Interestingly, it is the 49 metre allocation that is providing some surprises. Not only am I hearing the usual powerhouse signals, but also smaller regional stations. This allocation is very crowded, particularly at night with heterodynes on top of signals. The modulation on these signals can sometimes be detected using either the upper or lower sideband in conjunction with your notch filter.

For example, there is a low powered Indonesian floating around 6153 kHz hemmed in between signals on either side. It is actually located in Biak in West Papua (formerly Irian Jaya). The signal is often undermodulated and perhaps may not be carrying any programming at times, although the carrier remains on. Singapore is on 6150. Many of these regionals seemingly vary their frequencies; especially the Vietnamese further up within the marine allocation. The latter always seem to be on a different channel from day to day.

I believe that China has recently upgraded their transmitting facilities in Tibet, which they refer to as Xijang. They have been well heard on a number of HF channels including 6200 at around 1200, when they relay the Tibetan minorities program from Beijing. One monitor reports they have an English I/D. They are also have been monitored on 6130 kHz, which has also been a long time channel of Laos. I would presume that Tibet would be more stable than Laos, which is, from memory, not exactly on channel.

Kol Israel is continuing to broadcast in English on shortwave. I am currently hearing them very well on 17535 at 0500 but they go to Summer time early this month so they will now be on at 0400 until mid- September. I do note however the French broadcast, which automatically followed, has been dropped, so perhaps some changes were made to shortwave programming.

Broadcasts to Afghanistan continue to increase with Radio Free Afghanistan commencing operations late in January. It is part of the Radio Liberty/ RFE stable and is broadcasting from Prague in the Czech Republic. This station has been using the old Parliament building, right in the heart of Prague, and the nervous Czechs do wish to relocate it elsewhere, after September 11th. The Station and their American backers want to stay put for now.

Also the Russians became extremely nervous when this station decided to commence broadcasts to Chechnya in the local language. Moscow threatened to cancel their licenses to air their programs domestically throughout the Russian Federation. One day before the Chechen programs were to commence, the organization decided to postpone the release, after consultation with the US State Department.

The 8700 USB signal is continuing but with more music than previously. Not only are there many international stations now in Dari and Pushto, but an independent media has emerged within the country, so I expect that this SSB station could disappear at a moments notice. At present, I am hearing the VOA in Farsi or Dari on 17855 at 0230 UTC but it is unclear where it is coming from.

Recently the French started hiring out their senders, in a similar arrangement to their British and German colleagues. Libya has been heard via France now for some time and now it appears that Iran may also have started broadcasting via France. Also in an odd twist, Radio France International and Radio Taipei International recently signed an agreement to exchange airtime.

RFI currently broadcasts via Chinese transmitters to SE Asia and at deadline time, I have not heard of any reaction from Beijing to this agreement with Taiwan.

Don't forget you can email me at vk7rh@wia.org.au but please no attachments unless by prior arrangement. One SWL unwittingly sent me a virus, which was fortunately detected by my antivirus software.

Until next month, the very best of monitoring-VK7RH

Prize draws

Moorabbin and District Radio Club VK3APC

ENTRY ONLY $6.00!

HAMFEST 2002

Sales: new

Saturday 11 May 2002

Sales: used

MDRC have much pleasure in inviting you to participate in our ANNUAL HAMFEST to be held between 10.00am and 2.00pm on Saturday 11 May 2002. Snacks and hot food will be available. Talk in via VK3RML 2M repeater on 146.700 MHz and on 146.550 MHz simplex.

All inside and undercover

Demonstrations of ATV and packet radio

BRENTWOOD SECONDARY COLLEGE

Watsons Road, Glen Waverley.

Melways Reference 71 D7

Enter via Heath Street

Enquiries: Graeme Lewis, VK3GRL. Tel AH: (03) 9702 1199

Division News

VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

Two members answered my call for a position on the Divisional Committee. Confrere Russell Manning (VK1JRM) had not been an office bearer before, but John Woolner (VK1ET) had previously been secretary to the Division. Mrs. Linden Orr (VK1LSO), who had stood in for Ernest Hocking (treasurer) when he resigned last year, also nominated again. We now have a full complement of seven members on the committee. The line up is as follows: President, Gilbert Hughes (VK1GH); Vice-President Phil Longworth (VK1ZPL); Vice-President Alan Hawes (VK1WX); Treasurer, Linden Orr (VK1LSO), Secretary, Peter Kloppenburg (VK1CPK); Committee Members, Russell Manning (VK1JRM), John Woolner (VK1ET), Richard Elliott (VK1KRE).

The position of chairman of the ACT Technical Advisory Committee (ATAC) is filled by Michael Dower (VK1ENG), who continues from last year. The QSL bureau is managed by Waldis Jirgins (VK1WJ) and Ray Reinholz (VK1PRG), outwards and inwards respectively.

As announced previously, a BBQ was held in the compound in front of the Farrer hamshack one and a half hour before the start of the AGM. This event was well attended, probably because it provided an opportunity to twiddle the knobs on the transceiver installed in the shack. Those who remained outside were overwhelmed by the sound of European DX that was coming through at that time of the day. German, French, and Norwegian voices calling CQ wafted through the compound, while Waldis was busy inside answering the calls on behalf of VK1WI. Surprisingly, the Hy-Gain 18-AVT vertical, on the roof, was the antenna in use and gave excellent service.

There will be another BBQ held during the Trash & Treasure sale on Sunday, April 21, 2002. Naturally, in the compound.

The next General Meeting will be held on Monday, April 22, 2002 at 7.30 for 8.00 pm in the Scout Hall, Longerenong St. Farrer. Cheers

VK3 Notes

By Jim Linton VK3PC
WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au

AGM reminder

Members will receive a formal notice of the WIA Victoria Annual General Meeting that is to be held on Wednesday, 29 May.

There will be the traditional insert in Amateur Radio magazine that includes annual reports. Members who do not subscribe to the magazine will receive an individual mail out.

Trial Saturday opening of the office

To measure member interest in having weekend access to the WIA Victoria Office in Ashburton, a trial opening on Saturday's between 10am and midday is now underway.

During this trial, rostered Councillors will be available each Saturday to answer member and non-member enquires and discuss policies and services over a cup of tea or coffee.

On sale will be the 2002 Australian Callbook, licence study books, logbooks, used equipment and test gear. Members who are registered with the QSL Bureau can also drop off their outwards QSL cards.

The trial opening will continue until the AGM in May, unless it is found that the patronage is below justifiable levels. Normal Tuesday opening will continue. The telephone number of the office is 9885 9261.

2002 Callbook and CD ROM

The 2002 printed Australian Radio Amateur Callbooks are available from WIA Victoria office. Member Price $12.50, Non Member Price $15.00.

Mass production of the CD ROM containing both the callsign listings and the reference material and information, has been delayed. At the time of writing these VK3 Notes, their availability and price details were not known.

A proto-type of the fully searchable credit card-sized CD was briefly on sale at the Wyong Field Day in February. It is understood at the time of writing these VK3 Notes, that the CD is being refined before its release for sale.

WIA Victoria Website

Monthly visits to our web site www.wiavic.org.au are now more than double those of the same period last year, indicating the increasing popularity of the site both among VK and overseas radio amateurs.

WIA Victoria members who register to access the member's section of the site also receive the additional benefit of being included on the email list to receive all the latest news about our hobby, as it happens.

If you have access to email and the Internet, and are not registered, this can be easily done online via the website.

Thanks to Gary Furr, VK3KKJ who, although resigning from his position as

VK3 Divisional Councillor is to continue the enormous behind the scenes work to maintain and upgrade the website.

Nominations for Federal Coordinator roles

The WIA Victoria Council confirmed its support for the following members and these nominations have now been advised to the Federal Secretary for election by the Federal Council at the Federal Convention, to be held next month.

ARDF Coordinator
Jack Braham, VK3WWW

Federal Contest Coordinator
Ian Godsil, VK3VP

Federal Education Coordinator
Brenda Edmonds, VK3KT

Federal WICEN Coordinator
John Weir, VK3ZRV

International Travel Host
John Miller VK3DJM

QSL Collection Curator
Ken Matchett, VK3TL

WIA Exam Service

Following a review of the WIA Exam Service, it was necessary to invite fresh applications from the clubs wishing to provide examinations and the individual exam invigilators.

Letters of appointment have been sent to the exam team leaders and exam invigilators. A list of them will appear on the WIA Victoria website. If you are looking for an examination centre, or know someone who is, then check the website or telephone the WIA Victoria Office on 9885 9261.

We thank the clubs throughout Victoria who have undertaken to be part of the new exam service and provide examinations under the new rules.

VK4 Notes

Qnews

By Alistair Elrick VK4MV

Townsville Tech Library grows

The TARC Technical Library has grown a bit, thanks to a generous donation from the estate of Gary Hinspeter of a large number of racked and indexed back issues of Electronics Australia, Amateur Radio Action and Silicon Chip.

Gary was a volunteer with 4TTT-FM and although not a Ham, had a fascination with technical things. The TARCinc will be sorting this very valuable donation and integrating it with the existing technical library to make a mighty resource for the region.

2.4 GHz Data

Well a lot of background work has been going by Ian VK4kIJ, Keith VK4AKA and Len VK4ALF to get a reliable link running using the 2.4 GHz wlan technology. Last weekend they installed the Sunshine Coast node at their repeater site at Maleny with mixed test reports.

Further testing was done fine tuning modified cards resulting in VK4AKA making the 10 km mark, followed by VK4ALF making 39.3 km. Moving the dish a bit from the GPS positioning mark saw 5.5 Mb show up.

Gold Coast Repeater

Ken VK4KD is persevering with QNEWS broadcasts on the coast despite continued repeater problems. Most callbacks are originating on the 146.500 MHz simplex channel, such is the lack of coverage since the Gold Coast were forced into relocating from Springbrook. Thanks Ken and despite nowhere near the old 60 plus checkins, 20 in on a recent weekend simplex, is excellent.

Repeaters elsewhere

Geoff Nelson VK4ZGF in Maryborough reports 31 during a recent check in for the Qnews. Congratulations to all, a new "all time high" in the Hervey Bay, Maryborough area. Then Cairns 2 metre also a record high of 6 thanks to another Jeff, VK4MTV.

Precision 10m Beacon under test

A new beacon transmitter for the VK4RTL 10 metre Beacon is currently under test at the QTH of Don VK4MC. Don has adapted parts of a telecommunications exciter to make the 28.270MHz CW Transmitter, which includes a precision oven stabilised, crystal, harmonic filtering and a very clean and precise 5 watt output. Reception reports required, forward to the TARCinc email address

vk4wit @ wia.org.au or sp packet to tarc @ vk4rat.#nq.qld.aus.oc or call them in on a QNEWS callback or NQNET callback.

Amateur Radio Hour with VK4AA report

Yes, we got Chris VK4AA / VK3CE to go on-air in Townsville, even though he had to fly up via Cut-throat Airlines, nursing a jaw which had undergone extensive dental work, plus he was very anaemic after being attacked by killer Vampire Mozzies on top of Mount Stuart (the ones that guard the VK4RAT repeater).

Alan VK4PS introduced him, Gavin VK4ZZ got gazzumped by him (pun intended), but it was all meant to be. Chris was able to tell the listeners to the 4TTT-FM Community Access Radio Program-the Amateur Radio Hour, that as of February 27 it was only two weeks to go until the next (overdue) issue of RadioMag appeared. Chris also provided an enthusiastic commentary (prompted by Alan) of things currently happening in the world of Amateur Radio and also gazed into the tooth encrusted crystal ball and told all listening some of the things that might pop up in the hobby in the near future. Be sure to read RadioMag's editorial next issue, it will be certainly interesting and there just might be a photo or two of the killer Vampire Mozzies!

AMSAT

Bill Magnusson VK3JT

Switched OFF doesn't necessarily mean switched RIGHT OFF!

"Get an in-line AC ammeter and you will be amazed to find out how much power many new gadgets consume when switched 'off'".

This topic applies not only to satellite users but also to all computer users. But since the overwhelming majority of satellite users will be regular computer users it will apply to readers of this column. The subject was brought to my attention by a submission to the AMSAT bulletin board recently. Wayne Estes W9AE was replying to a thread concerning RF feedback around the shack. His response was interesting enough and wide-reaching enough to be worthy of reprinting here.

Over to Wayne. "Get an in-line AC ammeter and you will be amazed to find out how much power many new gadgets consume when switched 'off'. For example, my Harman Kardon active speakers draw 5 watts when switched off (my retired Sony active speakers draw 20 watts when switched off!). My Dell Pentium-4 computer draws 5 watts when switched off. My NEC LCD monitor draws 5 watts in standby, only dropping to 4 watts when I turn off the front panel power switch. All this stuff is connected to a power strip that I switch off after shutting down the computer. A few watts times 20+ hours per day (when you're not actually using the stuff) adds up to a LOT of wasted energy. The 'Energy Star' rating is totally bogus in my opinion. Infrequently used 'Energy Star' stuff often consumes far more energy in standby than it does in actual use".

Wayne goes on to sum up. "All my ham radio equipment really is off when switched off. But I haven't yet measured the off current drain of my new G-5500B rotor. It doesn't have a microprocessor but that doesn't guarantee that it's really off when switched 'off'. The power switch in many gizmos is connected to the secondary of the power transformer. The transformer stays powered up (nice and warm) even when the gizmo is switched 'off'. Obviously, all 'plug pack' transformers consume power 24 hours per day. My computer power strip also switches off the plug pack transformers for my cellphone charger and Maha AA battery charger".

Wayne's remarks are timely for all of us. I have since taken to switching off things at the mains switch when leaving the gear for any length of time. I found that easy to do since I live in an area prone to power spikes resulting from lightning and static discharge. My gear is normally powered through the kind of in-line switching board that Wayne was referring to above and this makes it easy to "hit-the-big-switch" in reality when closing down the station. I now routinely switch everything OFF when I'm not actually using it. The benefits of doing this are (at least) three-fold. Less likelihood of RF feedback from equipment that you think is inactive but is actually turned partly on. A worthwhile saving in your power bill and a reduced risk of fire from overheated apparatus, especially plug-pack power supplies. On this last point always be sure that the plug-packs you buy are completely compliant with current electrical regulations. They should have printed on them a compliance number about 10 digits long and beginning with V in Victoria, Q in Queensland etc. Thanks for your timely warning Wayne.

Another opportunity to test your 1296 MHz receiver sensitivity

You may recall that a couple of months ago during the Marconi-day celebrations a group of amateurs in Bologna, Italy secured some time on a large radio telescope and made EME transmissions. They used enough ERP to be heard in more modest "Oscar-class" station receivers, the idea being to enable users to assess their receive capability. Several years ago there were similar regular transmissions from a group in Algonquin, Canada. These tests have been fairly infrequent in recent years and always involve a lot of footwork by a few people each time. About 18 months ago a group in northern New Jersey, USA took it upon themselves to provide a continuous EME beacon service in the 23cm amateur radio band. This is very useful for EME-ers and Oscar-class stations wishing to test their gear at very weak signal levels. They have an informative web site at: http://www.setileague.org/eme/index.html that is well worth a visit. As the site name suggests, they are associated with the SETI league project. I have yet to try out this beacon service but I'm led to believe that stations with dishes of the order of 3 metres are already hearing the signals. Australia has brief mutual windows with NJ but the Moon will be low to the horizon at both ends. The frequency used is 1296 MHz and the callsign of the station beacon is W2ETI. The station is no jury-rigged hash-up. It comprises highest quality frequency measuring and power measuring equipment. So much so in fact, that during March this year the beacon service was used by technicians at the giant Aricebo radio telescope, the world's largest instrument of its kind to calibrate their receiver weak-signal threshold. During the tests the output was progressively wound back to "peanut-power" (Not a good time to test your Oscar station!). This is an outstanding example of how amateurs can take a meaningful part in state-of-the-art professional radio astronomy. Until recently the Aricebo team had used the transmissions from the Voyager spacecraft for this purpose. Voyager is now so far away that even this huge dish cannot receive the signals reliably.

The Ultimate DX Contact?

Don't try this at home! NASA recently announced that it had successfully bridged 7.4 billion miles of space to contact the Pioneer 10 spacecraft on the 30th anniversary of its launch. Scientists beamed a message to the craft from a radio telescope in the desert east of Los Angeles. A second radio telescope in Spain received the return response 22 hours and six minutes later. The return signal was reported to be "loud and clear". NASA last heard from the craft in July. Pioneer 10's original, 21-month mission has improbably stretched three decades. The spacecraft was launched on March 2, 1972. It passed through the asteroid belt between the orbits of Mars and Jupiter and obtained close-up images of Jupiter. In 1983, it became the first manmade object to leave the solar system when it passed the orbit of distant Pluto.

Packet Radio returns to ISS

Amsat News Service announced recently that normal packet activity has resumed aboard the International Space Station. The ISS crew upgraded the old system with a new packet module that was sent into space on an earlier mission. The old system, crippled with a dead backup battery for RAM, had been operating in a digipeat mode using the NOCALL call sign and other ROM defaults. The new module, using the callsign RS0ISS, is using a specially developed ROM set with standard ISS defaults, a new battery and an extended memory. Although the mailbox function has been activated, ground stations are discouraged from using it. Currently, there is no computer hooked up to the packet system; also, the crew will be much too busy to respond to individual messages posted there. Frequencies will remain the same: uplink on 145.990 MHz; downlink on 145.800 MHz. The installation and checkout of the packet module resulted from a team effort between the Russian team (led by Sergei Samburov, RV3DR) and the U.S. team. During the past month, the team developed a set of crew procedures that were reviewed and approved by specialists at both Energia and NASA.

Keps beware!

I had cause for concern a few weeks ago when I seemed to be the only one who was not able to turn on Tiungsat-1. All inquiries made came up with stunned looks and responses like, "It's working OK here". After checking just about everything I could think of, I turned to the keplerian elements. Voila! The keps had not been updated since January – but why? Further investigation revealed that the keps for Tiungsat-1 were no longer included in the "amateur-radio" set from Celestrak. I haven't found out why yet but that was the answer. All the rest of the satellites were being updated but not Tiungsat-1. Eventually of course the satellite was half-a-world away when I was trying to turn it on ..... Oh well.

The AMSAT group in Australia

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an e-mail mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000UTC with early check-ins at 0945UTC. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900UTC with early check-ins at 0845UTC. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141,
Adelaide, SA.5001.

Graham's e-mail address is:
vk5agr@amsat.org

New designations for old

It was recently announced that both PCsat and Starshine-3 had been allocated "Oscar-numbers". PCsat will henceforth be known as NO-44 (Navigational-Oscar-44) and Starshine-3 was allocated NO-45. Be careful to check for these new designations in keplerin element sets that you might download.

Notice for the WIA SA and NT Division members

The Division AGM is to be held on
28th May 2002 at 8 pm.

The venue is the St John's building Arthur St Unley.

Nominations are called for the following positions:

President, Secretary, Treasurer and councillors.

Nominations close on the 28th of April 2002.

Address for nominations:

The Secretary, WIA SA, GPO Box 1234, Adelaide SA 5001

Silent Keys

The WIA regrets to announce the recent passing of:-

R K Barrington VK2DOV

H D Schmidt VK5BVM

L S (Leith) Cotton VK5LG

How's DX?

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

Spoilsport QRM

DXpeditions are a great opportunity to work a 'rare' country or location that, for a variety of reasons, is not normally easily worked by the amateur population. And while we can all admit that amateur radio has many facets, with radio as the common theme, most of us cannot understand the reasoning behind the deliberate interference to a DXpedition station by another amateur radio station.

Two major DXpeditions in March, PW0T and TI9M, were both plagued by deliberate interference which made QSOs much harder than they ought to have been for a large number of operators. The 'cut and thrust' of a DX pileup is tough enough without having to put up with malicious QRM from a station or operator on the frequency who has no other intention than to disrupt the activities of others. I monitored one of the TI9M stations for a while and, happily, am convinced that the QRM was not originating from VK, strong but not from VK. PW0T also suffered from QRM but on a different band and day. While this sort of behaviour is beyond the pale, unforgivable and difficult to prevent, surely there are stations on the frequency, somewhere, that are very near to the source of QRM who can identify the culprit!

It is not only the deliberate QRM to DX stations that raise the ire of the amateur radio community. There are also those amateurs who refuse to abide by the various band plans causing QRM, knowingly or unknowingly, to other users. Band plans are 'gentleman's agreements' and are devised to minimise interference between the various modes and users of a band. To be effective they must be adhered to by all. Those who insist they have a 'right' to work wherever they like on a band, using whatever mode they like, are simply advocating anarchy, which will benefit no one in the long run. Those who ignore these 'gentleman's agreements' can only be described as un-social, insisting that their personal right is more important than orderly sharing of a limited resource. Kindergarten kids are encouraged to share when interacting with others, perhaps 'band plan breakers' should look inwardly and ask themselves if they are being fair. The hobby of amateur radio may well need members, but operators of these types we can all do without. (And by the way; yes, I think my chance of working TI9M was compromised by a selfish amateur operator!)

Voice from space

An unexpected station popped up on 14296kHz a few evenings ago. The space shuttle was heard while an astronaut was performing an 'extra vehicular activity' (space walk to those of us who are not up to date with the NASA jargon). I didn't catch the callsign of the operator aboard the shuttle but could plainly hear him describing to stations in Europe what was happening on the excursion. Apparently the 'maneuvering arm' was in action at the same time lending some help to the EVA astronaut on this part of their mission. I knew that shuttle crews are often active on VHF during a mission, but I have never heard of HF operations. I wonder if they QSL (or can swing the beam round to my direction? Hey perhaps that's what that arm thingy is for!!)

The DX

7X, ALGERIA. Mirek, VK2DXI (aka VK3DXI, 9V1XE) has been transferred to Algeria. He has applied for, and been granted, an amateur licence after the Ministry of Communications conducted an inspection of his equipment. Mirek is now waiting for his licence documents to arrive so he can begin operating. He hopes to be able to work as many VK stations as possible, check out his website at http://www.7x0.sp5zcc.waw.pl for more information. QSL via DL4DBR. [TNX Mirek, VK2DXI]

7Z, SAUDI ARABIA. Joe, W5FJG, is on a working trip to Jeddah, Saudi Arabia and has been issued the callsign 7Z1AC. He expects to be there until at least April this year and though work commitments will take priority he says he will operate as much as he can. QSL via WA4WTG. [TNX W5FJG and The daily DX]

9Q, ZAIRE. Pat, 9Q1A, says that he will be on air as much as possible, workload permitting. He will be looking out especially for VK and ZL stations daily on about 14280 kHz +/- QRM between 17:30 and 18:00 UTC. [TNX 9Q1A and 425 DX News]

D2, ANGOLA. Joao, CT1BFL, will be active from Angola as D2U for the next two years or so. He plans to operate on all bands 10–160 metres on CW and SSB. Joao mentions that due to QRN low band activity may be a little difficult but he will try. QSL via CT1BFL. [TNX CT1BFL and The Daily DX]

EA8, CANARY ISLANDS. Cesare, I5WEA is currently active as EA8/I5WEA from Tenerife in the Canary Islands until the 10th of April. [TNX I5WEA and The Daily DX]

ET, ETHIOPIA. Paul, W4PFM, will be stationed here for the next six months and has just been issued the callsign ET3PMW by the Ministry of Communications. He has already been active on 10 and 15 metres during the past few weeks. Have a listen around 28438 kHz after 14:30Z and on the 21270 kHz net after about 07:00Z. QSL via W7KEU. [TNX W4PFM and OPDX]

TT, CHAD. Chris, TT8DX is heading

back to Chad on the 27th of February and will be there until December. He plans to concentrate on the low bands and 6 metres. QSL via F5OGL. [TNX The Daily DX]

VK9, LORD HOWE ISLAND. Jack, VK6CTL will be operating as VK9LT from Lord Howe Island (OC-004) from the 11th until the 22nd of April. Activity will mostly be on SSB. QSL via HB9QR, Erwin Fink, Toedistr. 7, CH-8572 Berg, Switzerland. VK and ZL via VK6CTL. [TNX VK6CTL]

VP5, NORTH CAICOS. Rodger, GM3JOB and Willie, GM4ZNC will be operating from North Caicos (NA-002) from the 10th until the 19th of April. They will be signing as VP5/GM3JOB and VP5/GM4ZNC on all bands 160-10 metres, both SSB and CW. QSL via the respective home calls either direct or via the bureau. [TNX GM4ZNC and 425 DX News]

IOTA Activity

DL, GERMANY. A group of German operators, DF3UFW, DL8DZL, DK5NOA, DL2DSL, DL2DRO, DL2LCE, DM4WL and DL1DWR will be active from Usedom Island (EU-129, O-13 for the German Islands Award) over the period of the 12th until the 20th of April. Two side operations will take place when on the 14th of April when three members of the team will take a trip to Grosse Wotig (GIA O-35, but not an IOTA entity) while the remainder of the group will travel to Wolgaster Schlossinsel (GIA O-031, again not an IOTA entity). QSL via bureau. [TNX DL2VFR and 425 DX News]

I, ITALY. Tony, IK8VRH reports that he will be on a working trip to the islands of Ventotene (EU-045, IIA LT-011) and Ponza (EU-045, IIA LT-001) from the 4th until the 21st of March and the 3rd until the 19th of April. His first activity will have finished by the time you read this but his April trip should be timely. He plans to operate as much as he can as IB0/IK8VRH during his free time. QSL via home call. [TNX IK8VRH and 425 DX News]

Special Events

Mike Shortland, G0EFO, is a member of the **Titanic Wireless Commemorative Group**, and has sent along some information on a special event station that is being put on air to commemorate the 90th anniversary of the sinking of the RMV TITANIC. Mike says that the station will operate from 10:30 on Saturday the 13th of April until 05:47 on Monday the 15th of April (times in UTC). The activity is also to commemorate the heroism of Jack Phillips, the Chief Wireless Telegraphist of the Titanic. His SOS calls (in Morse code) saved more than 700 lives when the liner sank in the freezing waters of the North Atlantic 90 years ago to the day on April 15th at 05:47Z. Tragically, Jack (who was only 25 years old) lost his life on that fateful night, drowning along with many others. The special callsign GB90MGY (Titanic's callsign was MGY) will be operated by the members of the Titanic Wireless Commemorative Group (20 local hams and all members of the local Guildford and District Radio Society). The station will operate from Godalming, Surrey, UK, the birthplace of Jack Phillips, where his heroic deeds are still celebrated. Activity will take place on all amateur bands, CW only, from 80-10 metres (including the WARC bands). QSLs via RSGB. More information (preferred operating frequencies, times etc) can be found at http://www.gdrs.net/titanic [TNX 425 DX News]

The special event callsign IR0MA will be active to celebrate the 2755th anniversary of the founding of Rome during the period of the 1st until the 30th of April. (Although its only been a couple of centuries, perhaps we should have a similar activity for the founding of Sydney or Melbourne? Just a thought!) QSL direct only to I0MWI. [TNX The Daily DX]

The unique callsign **GB50 (Golf Bravo Fifty)** has been issued by the UK Radiocommunications Agency for a special event station to be established at **Windsor Castle** in celebration of **Queen Elizabeth's 50th anniversary of her succession to the throne.** The special event station will be active over the period of the 29th of May until the 9th of June. The station will be organised and operated by members of the Cray Valley Radio Society (CVRS) in association with Burnham Beeches Radio Society (BBRC) and also with the support of the Radio Society of Great Britain (RSGB). Activity will take place on all bands from 80–6 metres on CW, SSB, PSK31 and RTTY. The organisers hope to make as many QSOs with radio amateurs around the world as possible with an emphasis on the British Commonwealth countries. The station will be operational from 07:00–22:00 UTC daily. Several stations will be on the air simultaneously, and all will be equipped for multi-band operation. A web site is currently up and running and will be kept updated with the latest news, www.gb50.com The QSL Manager will be Owen G4DFI and an attractive commemorative card will be produced. Cards may be sent via the bureau, or direct to Owen Cross, G4DFI, 28 Garden Avenue, Bexleyheath, Kent DA7 4LF, England. Don Field, G3XTT will provide further information as it becomes available on his website including details of a special award, he will also handle all publicity. Don can be reached by e-mail at g3xtt@lineone.net [TNX G3XTT and RSGB]

DXpeditions

The planned DXpedition to **Mellish Reef** over the period of the 12th to the 22nd of April will operate five stations and will be active on all bands from 160–6 metres (including WARC) on SSB, CW and RTTY. One of the stations will be dedicated to 6 metres with a separate operator. The team will include G4EDG, JH7OHF, JJ1LIB, JP1TRJ, K3NA, VK4DH, VK4GL, VK4WR, VK4APG and ZL4PO. The group would like to acknowledge Yaesu, The Chiltern DX Club, 5 Star DXers Association, BT Exact Technologies and PCA.AA for providing equipment, support and material to help activate Mellish Reef. Visit the VK9ML website at http://www.qsl.net/vk9ml/2002/ for further information.

C5, THE GAMBIA. Jan, PA9JJ says he is planning a 'personal' DXpedition to The Gambia. He will be operating from

Kololi between the 15th and the 29th of April. He will collect his documentation and licence (he has applied for C56JJ) upon arrival in Banjul. Plans are to concentrate 40 and 80 metres and the WARC bands mostly on SSB, with some activity on the other bands using CW. No RTTY and no 160 metre activity is envisaged. His equipment will comprise an FT100 and a multiband dipole. His trip is actually a short holiday so activity will not be 24hrs a day. Logs will be available on the web at http://www.qsl.net/pa9jj after the operation. QSL via PA9JJ. [TNX OPDX and 425 DX News]

KH1 (Baker and Howland Islands). The operators of the KH1 (Baker & Howland) DXpedition will be YT1AD, AH6HY, K1LZ, K3NA, K6NDV, KW4DA, N6TQS, RZ3AA, YU1AU, YZ7AA, Z31FU, Z32AU and Z32ZM. The group will depart from Los Angeles on the 20th of April and head for Nadi in the Fiji Islands. Part of the team will then embark for Tuvalu while five other operators will fly to Funafuti and operate on a T2 call for about three days. The entire team will then travel from Funafuti on the 26th of April and should arrive on Baker Island on the 29th or 30th of April. Operations from Baker Island will continue until the 10th of May. The DXpedition will be very comprehensively equipped, including; 6 transceivers, 5 linear amplifiers (3 x ACOM 1000 and 2 x 400 W), 6 beams, 3 verticals, 2 dipoles, 2 beverages (320m), 2 x 5kVA and 2 x 2kVA generators, 1 km coax cable, 2 km wire, 1 km cord, 2000 litres of fuel, 120 anchors for support and 4 tents. (I bet they forget something!) Plans are to operate on all bands 160-6 metres on CW, SSB, RTTY, PSK, SSTV, FM and Satellite. The call to be used for the operation will be announced just prior to the beginning of the operation to deter pirates etc. QSL via YT1AD for CW, RTTY, PSK and SSTV contacts and via RZ3AA for SSB contacts. [TNX YT1AD and 425 DX News]

Round up

P5, NORTH KOREA (P5/4L4FN Status). Bruce, KK5DO, (QSL Manager for Ed, P5/4L4FN) was overheard saying that he feels confident that all the P5/4L4FN activity will count for DXCC. However, he did stress that it is not official, yet! He also mentioned that North Korea does not officially 'issue' a license, so any 'written permission' to operate should suffice. Government officials have visited Ed's station on a few occasions and the North Korean government is fully aware of his activity. His current contract with the United Nations World Food Program comes to an end in June, however, if it is renewed he anticipates being there for another year. Ed is still active on 15 metres SSB but he is currently honing his skills on CW and RTTY and should be using these modes soon. [TNX KK5DO and OPDX]

TARA PSK31 RUMBLE. The TARA PSK31 Rumble (The Spring Wakeup), sponsored by the Troy ARA, will be on air from 00:00 until 24:00 UTC on the 20th of April. As this activity promotes the PSK31 mode it will be PSK only on 80, 40, 20, 15, 10 and 6 metres. If you want to participate then the rules are available at http://www.qsl.net/wm2u/rumble.html or http://www.n2ty.org [TNX WM2U and 425 DX News]

Chris, G0TQJ, will be heading for **Kabul Afghanistan** on the 23rd of April. He says he will be there until approx. the end of July. His equipment will be an FT-920 into a multi-band dipole. [TNX G0TQJ and The Daily DX]

WORLD AMATEUR RADIO DAY "2002" AWARD. Sylwester Jarkiewicz, SP2FAP, who is the editor and publisher of MK QTC has forwarded the following announcement from Piotr Skrzypczak, SP2JMR, the president of PZK. "The W.A.R.D. Award is designed to commemorate the World Amateur Radio Day which is celebrated annually on the 18th of April. It is issued by PZK (Polish Amateur Radio Union) and the Editor of MK QTC. The WARD Award is available for a minimum of 50 QSOs on HF bands or 10 QSOs on VHF bands. All contacts must be made on April 18th between 00:00 and 24:00 UTC. A standard application form including the list of QSOs should be sent before May 31, 2002 to Redakcja MK QTC, ul. Wielmozy 5b, 82-337 Suchacz-Zamek, Poland. The price of the WARD Award is 3 USD, 5 IRC or 5 Euro. A full color example of the award (sized 210 x 297mm) can be viewed at http://qtc.radio.org.pl Special prizes will be made available for the following achievements; for the highest number of digital QSO's, for the highest number of SSB QSO's and for the highest number of CW QSO's. A version of the WARD Award is also available for SWL's.

RZ9MYL is the callsign of a **YL University** club station located in **Omsk, Asiatic Russia**. There are approximately 70 YL's attending the University who make good use of the station to practice their language skills. Most of the students do not have an amateur license or SWL ticket. Yuri, UA9MAR, is an experienced operator is usually also on frequency with the operator. The University issues separate awards for having QSO's with 2, 5 and 10 YL's using the various club station callsigns (RZ9MYL, UK9MYL and UZ9MYL). Applications for the award can be made by sending an extract of your log and $5 US to Gunter Haertling, DH6ARM, Am Kalkwerk 59, 04603 Lehndorf, Germany. For more info and pictures of the YL operators visit http://www.qsl.net/rz9myl/

Sources

Quite a wide range of information this month and our thanks are extended to the following people and organisations for it all; G3XTT, IK8VRH, DL2VFR, GM4ZNC, VK6CTL, W4PFM, I5WEA, CT1BFL, 9Q1A, W5FJG, VK2DXI, YT1AD, KK5DO, G0TQJ, WM2U, RSGB, ARRL, OPDX, 425 DX News and The Daily DX.

Silent Key

Jim Stephenson VK2AEK

It is with sadness we record the passing of Jim Stephenson, VK2AEK on 4th March 2002 aged 83. Jim had been an active amateur for over 50 years and was very well known and respected in Amateur circles.

Les Daniels VK2AXZ

Beyond Our Shores

David A. Pilley VK2AYD
davpil@midcoast.com.au

Most of the news this month has originated from the U.S.A. If you have any interesting news that you would like to share with our members, please email it to me.

The considerate operator

As the development of Radio Communications changes, so do the needs of those using new modes of transmissions to know just where to find each other on the amateur bands. The ARRL recently came up with a suggested list for *The Considerate Operator* so that if you are interested in say QRP, SSTV or PSK31 you will know generally where to look on the amateur bands. It isn't law, or IARU implied, it is just a guide. By so using, it may help to keep the bands a little better disciplined.

Some of the frequencies they have selected are outside of our amateur band allocations here in Australia, however SWLs may like to be aware of them.

("ACDS" means Automatically Controlled Data Stations)

1.800-1.810	Digital
1.810	QRP CW calling
1.800-2.000	CW
1.843-2.000	SSB, STV and other wideband modes
1.910	SSB QRP calling
1.995-2.000	Experimental & Beacons
3.500-3.510	CW DX
3.560	QRP CW calling
3.590	RTTY DX
3.580-3.620	Data
3.620-3.635	ACDS
3.710	QRP & Novice
3.790-3.800	DX Window
3.885	AM calling
7.040	RTTY DX & QRP CW calling
7.080-7.100	Data
7.100-7.105	ACDS
7.171	SSTV
7.285	QRP SSB calling
7.290	AM calling
10.130-10.140	Data
10.140-10.150	ACDS
14.060 QRP	CW calling
14.070-14.095	Data
14.095-14.099	ACDS
14.100	IBP/NCDXF beacons
14.101-14.112	ACDS
14.230	SSTV
14.285	QRP SSB calling
14.286	AM calling
18.100-18.105	Data
18.105-18.110	ACDS
21.060 QRP	CW calling
21.070-21.100	Data
21.090-21.100	ACDS
21.340	SSTV
21.385	QRP SSB calling
24.920-24.925	Data
24.925-24.930	ACDS28.060 QRP CW calling
28.070-28.120	Data
28.120-28.189	ACDS
28.190-28.225	Beacons
28.385	QRP SSB calling6
28.680	SSTV
29.000-29.200	AM
29.300-29.510	Satellite downlinks
29.520-29.580	Repeater inputs
29.600	FM simplex
29.620-29.680	Repeater outputs

Remember this is for Considerate Operators.

Digital voice

In January and February QST, Doug Smith, KF6DX, who is Chair of the ARRL Digital Voice Working Group, wrote an interesting article giving an update and forecast with the future use of digital voice. Most digital voice experiments and uses have been in the VHF/UHF and above frequencies so it was interesting to read that experiments had been conducted on 40 metres. Tucson Amateur Packet Radio (TAPR) is producing a digital voice coder/decoder called a "vocoder". In mid 2001 the ITU approved certain systems as standard and it is forecast that the appearance of digital audio will soon give rise to a new crop of digital receivers. A few months ago Alinco announced a digital voice option for some of their VHF and UHF transceivers. At the Japanese Ham Fair last year both ICOM and Kenwood demonstrated 23-cm digital transceivers. The ICOM operated at 8 kbits/s in voice mode and 128 kbits/s in data mode. In contrast on HF 3 kbits/s is considered high.

Is any member in Australia experimenting with this mode?

It would be interesting to hear from them.

Packet radio in space

ARISS promises no more "nocall" on ISS packet

Since Amateur Radio gear was installed on the ISS in 2000, the packet system—crippled with a dead RAM (random access memory) backup battery—has been operating in digipeat mode using the NOCALL call sign and other TNC default settings. Earthbound users have been able to access the system nonetheless, but the lack of a call sign has been an annoyance.

ARISS advise no more NOCALL! Normal packet activity—with a real call sign—should begin soon on the

International Space Station. Amateur Radio on the International

Space Station (ARISS) Board Chairman Frank Bauer, KA3HDO, said Expedition 4 crew will install the new packet module sent up to the ISS last August, and the system should be up and running by February 25.

The new module, using the call sign RS0ISS, will employ a specially developed ROM programmed with standard ISS defaults, a new battery and an extended memory—up to one megabyte. The TNC also has eight-bit capability to support Russian Cyrillic typesets, and a one-minute timeout disconnect from the PMS if no pertinent packets are heard.

The uplink is 145.99 MHz; the downlink is 145.80 MHz. For additional information, visit the ARISS Web site <http://ariss.gsfc.nasa.gov/EVAs/amsat01.pdf>.—ARISS

(ARRL N/L 22/2)

U.W.B. devices

Back in August last year I mentioned Ultra Wide Band Devices were under investigation in Europe and the USA.

U.W.B. is a modulation method where a low power transmitter produces a signal of extreme bandwidth. The signal may be small pulses of only 0.5ns that is radiated through wideband antennas capable of spreading over the entire spectrum. The intended output level is said to be less than 1mW but, even with this small amount of power, the energy produced during the pulse is quite high.

The ARRL reported the FCC had released a first report on these devices. Proponents have touted the technology is a means of providing high speed wireless data connections such as the internet as well as for such applications as object penetration imaging systems such as ground-penetrating radar, through wall imaging systems, medical and surveillance systems.

It isn't just the Radio Amateur frequencies that could be affected, concerns have also been expressed by the US Department of Defense, the airline industry and cellular telephone companies, about the potential of UWB devices to interfere with the Global Positioning System (GPS).

For now, at least, the FCC has stated communication uses of ultra-wideband will be restricted to frequencies above 3.1 GHz which was welcomed by the Defense Department as it will protect GPS and other critical military systems from interference. However DoD plans to monitor future UWB developments as are the ARRL.

(ARRL N/L 1/3)

For the DX prefix buff

The callsign GB50 has been issued for a special event station to be run at Windsor Castle to celebrate the Golden Jubilee of HM the Queen.

The station will be active 29 May-9 June, from 0700 to 2200 UTC daily, and will be open to the general public. For further information see < www.gb50.com >

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Silent Key

John Ewen Gerber OBE; AFC; VK1EG

Submitted by Col. Harvey VK1AU

On Saturday 2 March 2002, 84 year Old Timer John became a silent key.

As a graduate of the RAAF pre-war Wireless School at Laverton, John became entitled to a 1st Class Commercial Operators certificate. 25 years later he became interested in Amateur Radio and on the basis of his Commercial Certificate became VK1EG.

A bachelor, John lived for 36 years in units where access to aerials was difficult. His amateur operations were restricted to phone and CW contacts with friends in Canberra, Victoria and South Australia.

In 1940 when John was posted to Darwin, 12 squadron personnel lived in the abandoned Vesty Meatworks and operated Wirraways (with 1082-1083 TRF radio, with plug-in coils) from Parap aerodrome.

Later, galvanised iron sheds for dormitory accommodation were erected at Parap by squadron personnel. No ceiling fans, and lights-out at 2130 (except the toilet block) . If the mail was late, there would be a queue waiting outside the toilet block to read their mail.

In 1942 John did a tour with 4 Sqdn (Wirraways now with AT5-AR8 radio) doing Army Co-operation along the Kokoda trail and at Buna-Sananda, Then he became deeply involved in land air warfare policy. He had first hand operational experience as Air Liaison Officer to the 'G.O.C at Nadzab during the landings there in 1943; and attended the British Army's School of Land-Air Warfare. His O.B.E was well earned in the difficult Land-Air warfare environment.

Tours of duty as a pilot in several Dakota transport squadrons involved time in Korea, and for variety, a tour as CO of a Maritime squadron flying Lincoln aircraft.

Well known as a genealogist; aviation historian and genuine good-mate, John will be missed. His flying career started as a Corporal Air Observer in 1940 and progressed through Navigator, Advanced Navigator, Pilot and General Duties Staff Officer.

I believe a paper written by John for the Chief of the Air Staff led to RAAF acquiring long range Transport aircraft, the now famous Hercules C130 series.

Over-exposure to the midday sun during his tropical postings started the process that cost him his life.

Vale John VK1EG.

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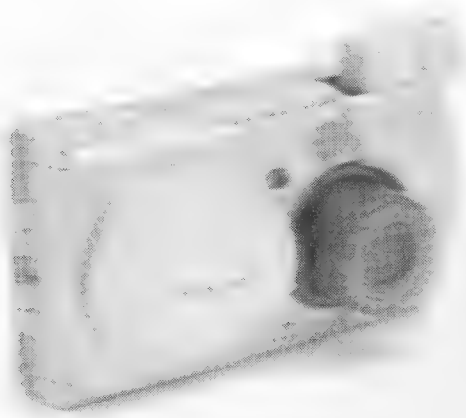

Will McGhie VK6UU
21 Waterloo Cr Lesmurdie 6076
will2@iinet.net.au

Digital Cameras

Many amateurs already own a digital still camera but for those who don't and are thinking about buying one, a few words from a digital camera owner. This is a big subject and only some simple basics are contained in this article.

Digital cameras are great. The quality exceeds your average camera in terms of the final printed snapshot. Film cameras are capable of fantastic pictures but the end result of mass developing and other factors can result in rather ordinary pictures. Film is capable of resolutions in the thousands of DPI (dots per inch) but DPI is just one of many aspects that go together to produce a good picture.

Digital cameras are now available that come close enough to equaling film DPI. A 5 megapixel digital camera equates to about 2,500 DPI. Depending on what type of film you are using the DPI is unlikely to exceed 4,000 DPI, and other factors such as the lens may mean a film camera is unable to focus an image that can take advantage of the DPI figure of film. Digital cameras not only come close to many film cameras; they can exceed them in final picture quality.

My first was a third of a megapixel camera, meaning it had 640 horizontal pixels to 480 vertical pixels. It took fairly average looking pictures in terms of resolution but did a good job on colour accuracy, gray scale tracking and gamma. The pictures were pleasing enough and many thousands of pictures were taken using the Epson 500. After a few years, and much Internet research, I bought a second hand Kodak 4800 digital camera. In fact I bid for the camera on ebay via the Internet, which was a fun experience in itself.

So for any amateur wanting to purchase a digital camera, and knowing little, a few pointers.

DPI (Megapixels)

As important as dots per inch are, there is a point at which extra DPI may be a waste. If your main use of a digital camera is to view pictures on a computer screen then a one megapixel camera does a good job. During a recent car trip from Melbourne to Perth following the coast as much as possible all the way, all digital pictures were taken at one megapixel, the lowest resolution on my three megapixel camera. The pictures look great and print up to A4 size also looking great. The reason for choosing the one megapixel size was to be able to take lots of pictures on the available memory card. My camera contains a 128 Meg flash memory card and this allowed for 390 pictures with low JPEG compression. Digital cameras let you take pictures at no cost. Experiment away and keep the good ones and erase the bad ones.

The point is don't assume a digital camera has to have lots of pixels to take a good picture. Experience has shown a good zoom lens (3 times minimum) and lots of memory are more important.

So if you can't afford the latest digital camera with its 5 megapixel resolution, have a look at the one two and three megapixel cameras. Memory size for storing pictures is important if you are traveling, as there is nowhere to download the pictures. As a bare minimum 32 Meg of memory. This allows for almost 100 pictures at the one megapixel resolution with low jpeg compression.

Lenses

A digital camera is only as good as its lens. A close look at many digital camera lenses shows a small amount of chromatic aberration, colour fringing at the edges of the picture. This effect is slight and usually only seen if you zoom in on the edges of the picture, where there is high contrast changes like the edges of tree branches or buildings. It is worth mentioning, as you may wonder just what it is when you take a close up look at some digital photographs. Just as many film cameras suffer from the same effect but at snapshot size printing it is normally not seen, it is the digital image that allows for closer scrutiny.

ISO

Most digital cameras now come with what is the equivalent of film speed adjustment or ISO setting. In the digital world this is just camera sensitivity (more gain) It comes at the expense of increased noise in the picture, just like film. I tend to leave the ISO setting at normal and increase the iris size or longer exposure. Once you have noise in the picture it is difficult (but not impossible) to do much about it when computer editing.

Focus

All the various camera setting aside, digital cameras come with an automatic setting that works very well. In particular the automatic focus, which 99 times out of a hundred, gets the focus spot on.

Exposure

In the manual mode my particular camera can be set from a thousandths of a second up to a time exposure of 16 seconds. This time exposure allows for some rather interesting photographs to be taken. One night I set up the camera on a tripod looking down my street. The resulting photograph was a surprise, as the street came out in strong colour along with the stars in the sky.

Processing

This is where the fun is. There is almost nothing that can't be done on a computer to a digital photograph. What I aim for is simple, a pleasing photograph. Black blacks, white whites, a good colour balance with a bit of unsharp mask (sharpness). It is not possible to go on with an article on digital photography processing on the computer because it is a very lengthy subject. It took many hours of playing around and a fair bit of

Continued on page 40

Opinion

Drew Diamond, VK3XU.

Why it is important to contribute technical articles to AR

At radio club meetings, or on-air, the remark- "no-one builds any more" is sometimes heard. As a regular contributor to this esteemed journal, I enjoy a considerable correspondence with interested readers (letters that you and our editor never see), and am therefore able to form a pretty good picture as to what many of our colleagues are doing. Because builders and experimenters typically spend more of their precious time in the workshop than on-air talking about their accomplishments, it is assumed that little technical work is going on. Let me say here that there is a significant crowd of keen radio workers around this country busily building and experimenting along various lines, a number of them (as far as I know) doing some valuable new work, or refining and adapting the results of others. For instance, I know of several keen receiver builders with some very bright ideas, who are achieving good results in their field.

The problem is though, that not enough of these projects and experiments get written-up or documented. It seems that some fellows find that, when a project is satisfactorily completed, there is little energy remaining to follow through with the necessary "paper-work"- or the urge to get on to the next exciting project is just too strong. Admittedly, there is generally about as many hours in writing a project up as in the doing of it. Never-the-less, I feel it is important that, whenever possible and appropriate, projects and experimental results should be suitably documented for publication. Let me list just six good reasons for doing so:

1. In order that other enthusiasts may have a go at building their own model, along similar lines.
2. To allow an experimenter/builder to "borrow" ideas for adaptation to some other project.
3. Keeping abreast. For various reasons, many readers have no immediate intention of actually building a described project, or directly applying experimental results, but are never-the-less very interested in the work of others, and expect to see and read such articles in their society's official journal.
4. Politics. Amateur radio still has as one of it's core functions; "technical investigations and experiments", and it is therefore vital that our journal should regularly publish suitable material. Any government official, politician or other person or body who wishes to know what we are up to (in the Technical Dept.) has only to look in our journal, and hopefully be assured that we are indeed doing worthwhile work.
5. The traditional free exchange of ideas- so that amateur radio societies in other countries may re-publish in their own journal, material which is thought also to be of interest in that country (as Gil Sones does for us here in his valuable "Technical Abstracts" column).
6. Historical. All published articles become an archival document, so that any person may reasonably access information as necessary at some future time.

So, have a think about the value of the radio work that you do. If you observe that your friends find it interesting, and request further details; then it's a sure bet that many AR readers would like to see it too. Please share it around- write that article for your magazine.

ar

Digital cameras *continued*

reading on the Internet to have some skill in digital computer processing and the results are most pleasing.

Printing

Printing out digital photographs, even on cheap $250 printers produce surprisingly good results. You have to use the correct paper to prevent the ink from spreading out, if you want the best quality but it is worth it. Some photographic development houses will print your digital photographs from a digital image. Either drop the pictures off on disk, CD or the camera memory card and pick up the finished photograph a day or two latter. Digital printing takes longer than film processing, as it is a new wait and see venture. Many photographic developers allow you to e-mail in the photographs, which saves a trip.

Internet

If you want to learn more about digital cameras there is no better place than the Internet. There are hundreds of sites with pictures, information and reviews of all the different models of digital camera. The very camera you may be thinking of buying will be listed along with its specifications, sample pictures and opinions from people who already own the camera. Truly amazing, although it is important to use some degree of humor, intuition and judgment when reading user reviews on the Internet.

We live in a time where much is taken for granted, and for all the bad comments about the Internet the good outweighs it many times over. Researching a product like a digital camera on the Internet is incredible, so much information available, and you can even end up buying your final digital camera choice via the Internet.

One great site for looking up digital cameras is Steve's Digicams. You can even send in pictures and the best one each month wins a digital camera. Have a look at:
www.steves-digicams.com/
daily dpotd.html

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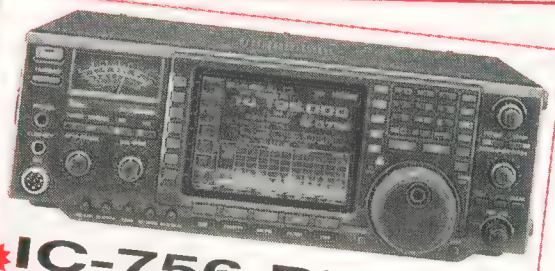

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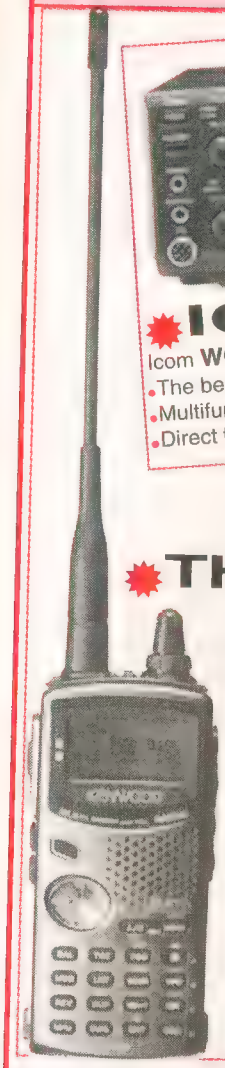

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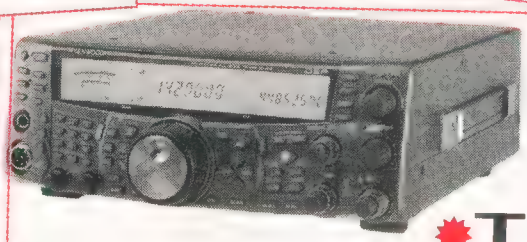

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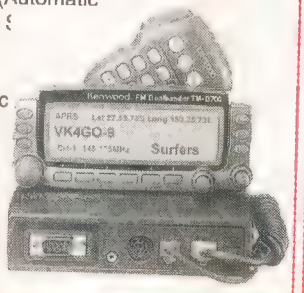

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Contests

Ian Godsil VK3VP
contests@wia.org.au

Contest Calendar April — June 2002

Apr	6/7	SP DX Contest	(CW/SSB)	
Apr	6/7	EA RTTY Contest		
Apr	12-14	Japan Intl. DX Contest High Bands	(CW)	(Dec 01)
Apr	13/14	Holyland DX Contest	(CW/SSB)	
Apr	20	TARA PSK31 Rumble		(Mar 02)
Apr	20/21	YU DX Contest	(CW/SSB)	
Apr	25	Harry Angel Sprint		(Mar 02)
Apr	27/28	Helvetia DX Contest	(CW/SSB)	
May	4/5	Danish SSTV Contest		
May	4/5	10-10 Intl. QSO Party	(CW/RTTY)	
May	4/5	ARI Intl. DX Contest	(CW/SSB/RTTY)	
May	11/12	VOLTA RTTY Contest		
May	11/12	CQ-M Intl. DX Contest	(CW/SSB/SSTV)	
May	18/19	Baltic Contest	(CW/SSB)	
May	25/26	Anatolian RTTY WW Contest		
May	25/26	CQ WW WPX Contest	(CW)	(Feb 02)
June	1	VK/trans-Tasman Contest		(May 02)
June	1/2	South American WW CW Contest		
June	[illegible]	QRP Day		(Apr 02)
June	8/9	ANARTS WW RTTY Contest		
June	8/9	Queen Elizabeth II Golden Jubilee Contest	(CW/SSB)	(Apr 02)
June	8	Asia-Pacific Sprint	(SSB)	
June	15/16	Novice Contest	(CW/SSB)	
June	22/23	SP QRP Contest	(CW)	
June	22/23	Marconi Memorial HF Contest	(CW)	

Greetings to all readers

Special Points to Note

This month your support is asked for the annual Harry Angel Sprint, on ANZAC night, 25th April. We remember Harry as VK's oldest licensed amateur at the time of his death in 1998.

All you RTTY enthusiasts will be aware of the large number of contests for this mode in the near future, especially the ANARTS World-Wide Contest in June. Please make these known to as many VKs as possible.

From Dave Lawley G4BUO, the following note for your diary—

"To celebrate the Golden Jubilee of Her Majesty Queen Elizabeth II in June, 2002, the Radio Society of Great Britain is organising a special contest to promote contact with stations in the British Commonwealth. There will be commemorative plaques for the overall winners, certificates for the leading score from each country and for all stations contacting 50 or more Commonwealth call areas. The General Rules for RSGB HF contests do not apply to this event."

Full details are listed below and there is a special logging program for this event called "SDJ", written by Paul O'Kane EI5DI, the author of the logger 'Super Duper'. This program may be downloaded from Paul's web site: http://www.ei5di.com. *It is a stand-alone program and if you have never tried Super Duper I would encourage you to do so through this event. Those already using SD need not download this special program, but use Type 9 category.*

General

As I have indicated sometime recently, 2001 was my year for learning to use a contest logging program. As a result, I do have a favourite, but I use two others if and when situations demand. I also subscribe to a reflector for my chosen program and I was amused the other day to read that the latest version is causing an intermittent fault. The correspondent had decided not to impede his progress in whatever he was working at the time, so went on entering by hand. His comment was "writing and operating the paddles is no joke".

I smiled to myself because now I know exactly how he felt and many of you will know also. This is an example of how quickly we can adapt to new ideas and tools available.

Twelve months ago I would have reacted quite differently from this, but now I have no hesitation is urging any of you who are interested in contests but not yet using a logging program to learn one as soon as possible.

There are those who may say that DOS-based programs are old-hat and ^&%#*(, but trying is key to it all. There are good reasons why the long-standing loggers are DOS-based, but this does not mean that you MUST run your computer under DOS (and learn it if you are young enough to have come up through Windows only). You can still use a DOS window within Windows. Perhaps this could be food for discussion at a later time.

So if you have not gone into contest logging, please do so soon! The advantages are many, especially being able to send entries electronically – something that is now being required by ARRL and may well become standard for most contests.

VKHAM Contest Site

I have received a few comments on the new web site and I thank all those who took the time. However, I would still like to hear a wider cross-section of opinions. Please look at: www.vkham.com/contest/

73 and good contesting, Ian Godsil VK3VP

The VK/ trans-Tasman Contest:

This exciting 80 metres Contest will be staged on the first Saturday in June.

It runs for 6 hours, in 1 hour stages, - long enough to be interesting without being arduous, and providing constant activity with stations being reworked each hour.

The main emphasis will be on contacts made between VK and ZL stations, with the scoring structured to give all stations an equal chance, regardless of their geographical location.

Bonus points can also be earned each hour, and are awarded to encourage trans-Tasman contacts and participation by VK5s, 8s and VK6s.

Phone and CW Categories will be catered for, as well a separate Category to encourage QRP operators.

An engraved trophy will be awarded to the outright winner, with certificates for winners and placegetters in the other Categories.

This Contest is not a sprint or a marathon. It will provide 6 hours of non-stop evening entertainment that should not impinge too much on family life or sleep time.

So, make a note of the details, and give it a go!

The only thing we ask is that you take the time to submit your log (even if you don't think you will win). This is essential to make it all worthwhile, and to ensure the on-going success of the Contest.

Rules will be published in the WIA and NZART magazines, and are available on the Contest website:

http: // home. iprimus. com. au / vktasman

Queries and comments can be emailed to the Contest Manager on:

vktasman@hotmail.com

QRP Day Contest 2002 Rules

0700z -1100z Sat 8 June

Open to all CW operators.

Object is to work as many stations as possible.

Category: Single Operator only.

Sections: (i) VK, ZL, P29 (ii) outside the above call areas.

Mode: CW only. **Bands:** all HF bands (no WARC).

Exchange: RST plus serial number beginning at 001 and incrementing by one for each contact.

Repeat contacts on same band: In order to make greater use of available band space and time, repeat contacts with the same station will be allowed with a minimum of two (2) hours between contacts.

Special Event Station: In 2002 VK3JS will act as a Special Event Station. It will operate on all HF bands, but will submit a Checklog only. VK3JS may be worked once only for the contest, and stations may claim 20 POINTS for the contact.

Scoring:

Stations within VK/ZL/P29 score as follows: -

VK/ZL/P29 contacts 1 point

Outside VK/ZL/P29 3 points

Stations outside VK/ZL/P29 score as follows:-

VK/ZL/P29 contacts 3 points

Outside VK/ZL/P29 1 point

Special Event Station VK3JS: 20 points

All contacts made with homebrew transmitter or transceiver score double points.

Final Score is the sum of the total QSO points. Except for the use of homebrew equipment (see above), no multipliers apply.

Certificates: Certificates will be awarded to the following:–

(i) first three placegetters in each section,

(ii) top scorer on each band (if the entrant is not already a placegetter).

General: any station claiming to operate QRP MUST NOT exceed a maximum of five watts carrier to the antenna and should add /QRP after its callsign. Logs showing contacts and points claimed, together with a full description of equipment used, should be sent to:-

Ron Everingham VK4EV,

30 Hunter Street, Everton Park, Queensland, 4053,

no later than 5 July, 2002.

QEII Jubilee Contest Rules

from Dave Lawley G4BUO,
Contest Manager

8/9 June, 2002 1000z Sat. – 1000z Sun.

To celebrate the Golden Jubilee of Her Majesty Queen Elizabeth II in June 2002, the Radio Society of Great Britain is organising a special contest to promote contact with stations in the British Commonwealth. There will be commemorative plaques for the overall winners, certificates for the leading score from each country and for all stations contacting fifty or more Commonwealth call areas. There will also be a range of special certificates for UK Intermediate and Foundation licensees. The General Rules for RSGB HF Contests do not apply to this event.

Date: Sat. 8/Sun 9 June 2002.

Time: 1000UTC Sat - 1000UTC Sun

Bands: 3.5, 7, 14, 21 and 28MHz.

Modes: CW and SSB. IARU band plans should be observed. Contest-preferred segments should be observed; no operation to take place on 3560 - 3600, 3650 - 3700, 14060 - 14125 and 14300 - 14350kHz.

Exchange: RS (T) and serial number starting from 001.

Categories:

(a) Single operator unassisted. Entries may be CW only, SSB only or mixed mode.

(b) Single operator assisted. As (a) above but passive use of DX spotting nets and DX Cluster is allowed. Self-spotting is not allowed.

(c) Multi operator. As (b) above but more than one person may operate the station. In all categories only one signal may be transmitted at a time.

Sections:

(a) British Commonwealth: Work any station except your own call area.

(b) Rest of the World: Work any station in the British Commonwealth.

Scoring: Stations within the Commonwealth may not contact their own call area for points or multipliers. Stations outside the Commonwealth may contact Commonwealth stations only. See the call area list. Note that for this contest all of G, GM, GW, GI, GJ, GU, GD counts as one call area, and therefore British Isles stations (excluding EI) may not work each other. A station may be contacted only once per band, regardless of mode. Each contact scores 5 points. **Multiplier** is the total of different Commonwealth call areas worked on each band.

Final score is the total of QSO points multiplied by the total multipliers worked.

Logs: Electronic submission of logs by disk or e-mail is encouraged, and is required from all who use a computer to log or prepare the logs. Electronic entries are preferred using recognised contest software (eg SD, CT, NA, TR). ASCII log files are required, together with an ASCII summary file. File names must indicate the entrant's callsign eg g3xyz.log and g3xyz.sum. The entrant must ensure that the logging software produces a log file that contains all QSO data correctly scored.

Logs must show: Time, Callsign, RS (T) / serial number sent, RS (T) / serial number received, multiplier claimed, QSO points.

A **summary** indicating category and section, contacts per band / mode must be included with a declaration that the rules and licence conditions have been complied with. All QSOs (including duplicates) must be included, with non-scoring QSOs clearly marked. Single mode entrants who make contacts on the other mode should submit these separately as checklogs.

Send logs by e-mail as an attachment to: <hf.contests@rsgb.org.uk>

Postal entries should be addressed to: RSGB HF Contests Committee, c/o S V Knowles G3UFY, 77 Bensham Manor Road, Thornton Heath, Surrey CR7 7AF, UK. The closing date is 6 July, 2002.

(Customised logging software SDJ is available from EI5DI's web site: www.ei5di.com)

Awards:

(a) A commemorative trophy will be awarded to the UK station making the highest score in the single operator unassisted category.

(b) Commemorative plaques will be awarded to the first, second and third placed entrants in the British Commonwealth and Rest of the World sections for each category, and to the leader on each mode in each category.

(c) The leading entry from each country will be awarded a special certificate, provided that at least 100 QSOs have been logged.

(d) Certificates will be awarded to the three highest placed UK Intermediate licensees, and to the three highest placed UK Foundation licensees.

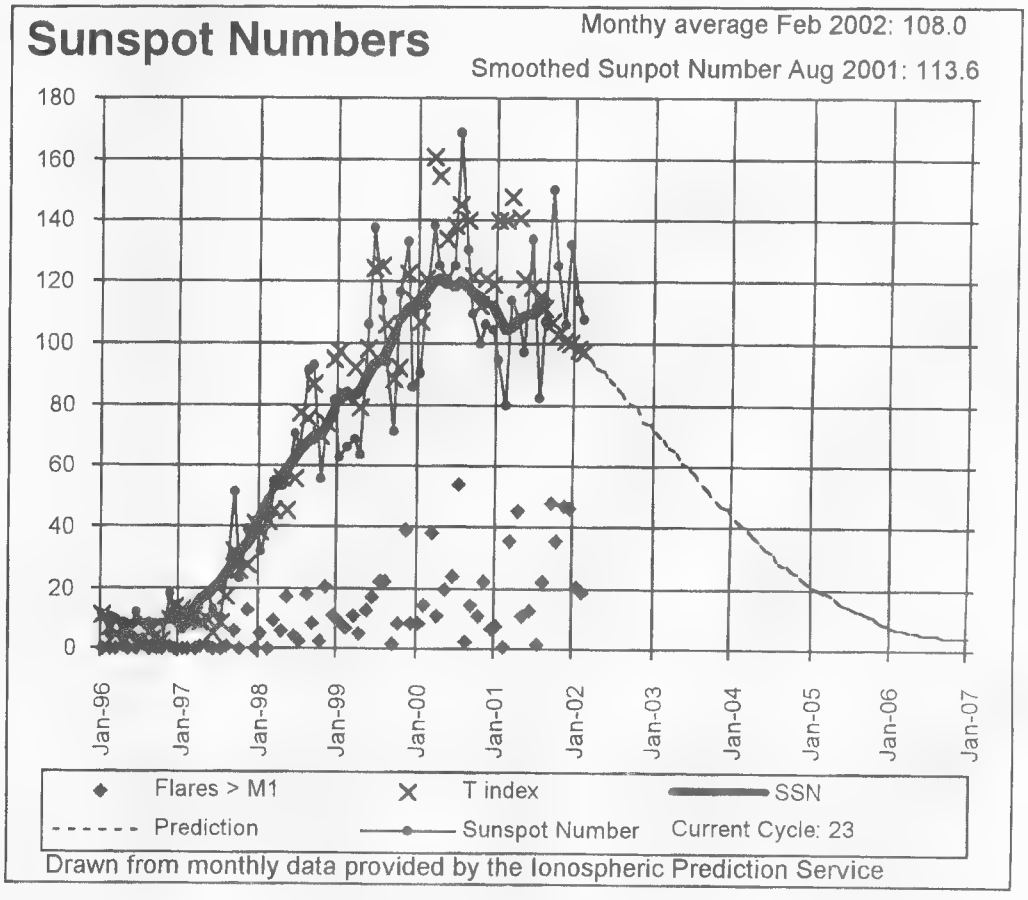
(e) A commemorative certificate will be awarded to every entrant who contacts 50 or more band call areas.

Commonwealth and Jubilee Contests Call Areas - 2002

3B6/7 Agalega and St Brandon
3B8 Mauritius
3B9 Rodriguez Island
3D2 Fiji
3D2 Rotuma
3D2 Conway Reef
3DA Swaziland
4S Sri Lanka
5B Cyprus

Commonwealth and Jubilee Contests Call Areas - 2002 *continued*

5H Tanzania
5N Nigeria
5W Western Samoa
5X Uganda
5Z Kenya
6Y Jamaica
7P Lesotho
7Q Malawi
8P Barbados
8Q Maldives
8R Guyana
9G Ghana
9H Malta
9J Zambia
9L Sierra Leone
9M0 Spratly Islands
9M2 W Malaysia
9M6/8 E Malaysia
9V Singapore
9Y Trinidad & Tobago
A2 Botswana
A3 Kingdom of Tonga
AP Pakistan
C2 Nauru
C5 Gambia
C6 Bahamas
C9 Mozambique
CY0 Sable Island
CY9 St Paul Island
G, GD, GI, GJ, GM, GU, GW etc United Kingdom (all one area)
H44 Solomon Islands
H40 Temotu
J3 Grenada
J6 St Lucia
J7 Dominica
J8 St Vincent
P2 Papua New Guinea
S2 Bangladesh
S7 Seychelles
T2 Tuvalu
T30 W Kiribati
T31 C Kiribati
T32 E Kiribati
T33 Banaba
TJ Cameroon
V2 Antigua & Barbuda
V3 Belize
V4 St Kitts & Nevis
V5 Namibia
V8 Brunei
VE1 Nova Scotia
VE2 Quebec
VE3 Ontario
VE4 Manitoba
VE5 Saskatchewan
VE6 Alberta
VE7 British Columbia
VE8 North West Territories
VE9 New Brunswick
VK0 Heard Island
VK0 Macquarie Island
VK1 Australian Capital Territory
VK2 New South Wales
VK3 Victoria
VK4 Queensland
VK5 South Australia
VK6 Western Australia
VK7 Tasmania
VK8 Northern Territory
VK9C Cocos (Keeling) Islands
VK9L Lord Howe Island
VK9M Mellish Reef
VK9N Norfolk Island
VK9W Willis Island
VK9X Christmas Island
VO1 Newfoundland
VO2 Labrador
VP2E Anguilla
VP2M Montserrat
VP2V British Virgin Islands
VP5 Turks & Caicos Islands
VP6 Pitcairn Island
VP6 Ducie Island
VP8 Antarctica
VP8 Falkland Islands
VP8 South Georgia
VP8 South Sandwich
VP8 South Shetland
VP8 South Orkney
VP9 Bermuda
VQ9 Chagos
VU India
VU4 Andaman & Nicobar Is
VU7 Laccadive Islands
VY0 Nunavut
VY1 Yukon
VY2 Prince Edward Island
YJ Vanuatu
Z2 Zimbabwe
ZB2 Gibraltar
ZC4 Cyprus (UK Bases)
ZD7 St Helena
ZD8 Ascension Island
ZD9 Tristan da Cunha & Gough Island
ZF Cayman Islands
ZK1 North Cook Islands
ZK1 South Cook Islands
ZK2 Niue
ZK3 Tokelau
ZL0 /ZL New Zealand Reciprocal
ZL1 New Zealand - Area 1
ZL2 New Zealand - Area 2
ZL3 New Zealand - Area 3
ZL4 New Zealand - Area 4
ZL6 New Zealand
ZL7 Chatham Islands
ZL8 Kermadec Islands
ZL9 Auckland & Campbell Island
ZS1 Western Cape Province
ZS2 Eastern Cape Province
ZS4 Free State Province
ZS5 Kwa-Zulu Natal Province
ZS6 Gauteng Province
ZS8 Marion Island
ZS0 South Africa Special Event



Ham Shack Computers

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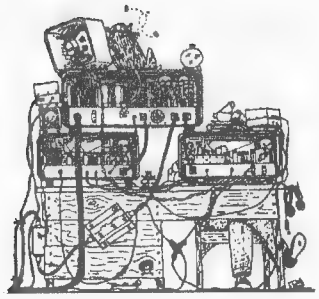


Part 13 – Computer Viruses

All computers are prone to virus attacks. The effect can be total software devastation rendering your computer useless within seconds. Even when not connected to the Internet, but you use or swap files on floppy disks, CDs or try to install new software, you are wide open to virus attacks.

As humble human beings, we take steps to vaccinate our children and promote cleanliness to avoid the possibility of catching infectious diseases. There is no guarantee that these steps will prevent disease, but we have minimised the risk.

With computers, many thousands of data files are used to effectively make the computer work properly. If just one of these files is faulty, our computer stops working until the file is repaired or replaced. But which is the faulty file?

What are computer viruses?

Viruses are computer programs written by ill-intentioned programmers, and designed to attach copies of itself to other computer files. Thereafter, whenever the infected program is run, the attached virus program is activated and attaches itself to other files and programs and so on. The process continues until your computer "crashes" and becomes unusable. Many viruses run "in the background" and are invisible to the user but can be passed on to other users by email or exchanging disks. Here, the viruses spread rapidly attacking other files until a state of collapse exists. Virus programs usually have classified targets to infect. These are broadly:

1. **Program viruses** that infect executable files that run computer programs like word processors, spreadsheets, games, and operating system files.
2. **Boot viruses** can infect disks by attaching themselves to special programs called boot records and master boot records. These records contain the programs needed to start your computer from switch-on and to open Windows.
3. **Macro viruses** are small command files that are used to perform specific operations – like automatically doing something with your favourite computer program. They are little programs that run within a major program like your word processor. There are hundreds of these little macro files that are also open to virus attacks.

Today, there are tens of thousands of viruses wandering around the world. Many viruses are known and are identified by anti-virus software writers who provide appropriate programs that will eliminate (delete) these undesirables. However, new virus programs are being written and distributed worldwide every day. Keeping your Anti-Virus software up-to-date is essential to survival.

In just one short Internet connection to collect email, the writer was "hit" with 14 separate virus files within seconds. The computer immediately failed to respond, and to resolve the problem and eliminate the viruses, the writer had to run an Anti-Virus program from protected (read only) floppy disks. It took over four hours to restore the computer back into full operation where each virus had been identified and successfully removed.

In severe cases, it becomes essential to re-format your hard drive and reload all the software from scratch. This can take more than a week of spare time and is the worst case scenario.

Virus Definitions

Because viruses are written in computer code, they can be identified by their special code characteristics. AntiVirus software companies collect these special virus characteristics and devise specific virus definitions - and the means to delete the virus before further damage is done. These definitions are collected for each known virus and listed in a virus "look-up" file attached to an AntiVirus software package on your computer. Once your AntiVirus software identifies a "hit", the definition file database is scanned to see if the virus is known. Once identified, the user can choose to delete the virus and/or inoculate your own computer files to clear up the problems and return to normal use.

If an unknown virus is suspected by the AntiVirus software, which appears to be damaging or attempting to change files on your computer, the AntiVirus software prevents this action from happening. The software presents the user with a warning dialogue menu suggesting an appropriate course of action.

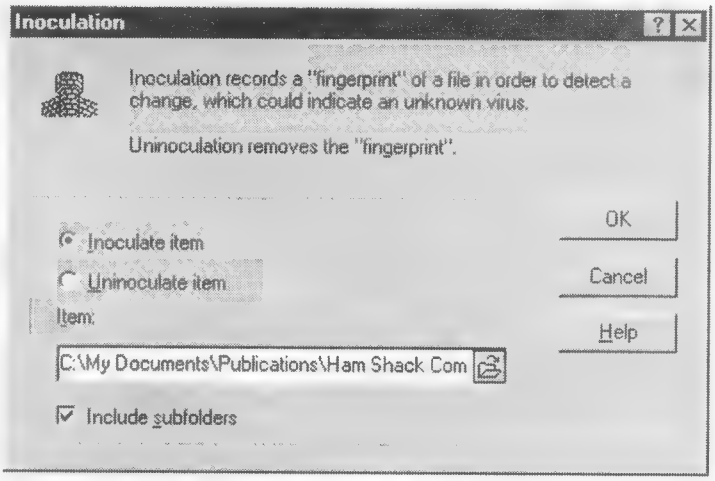
In addition, mature AntiVirus software offers the user the option of inoculating your own files, and/or continuous operation in the background as a "safe guard that watches" every action made by your computer. Should suspicious activity be detected, the user is warned of the activity with suggested steps to be taken to resolve the situation. This is the "vaccination stage" that all computer users should be aware – and be thoroughly proficient in it's use. Remember – you may not know that you have a virus – but you could be "the carrier" just like bacteria in the human world. Don't pass on viruses to others.

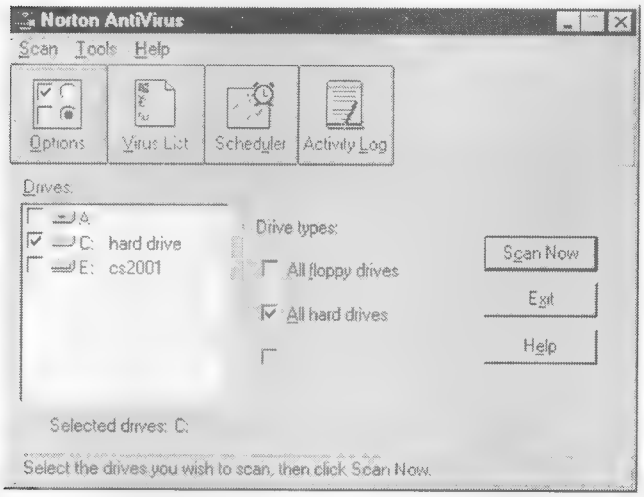
Kids exchanging games on disks, AR operators trying new software, the Internet itself, ISPs and data servers, other World-Wide-Web users, BBSs, schools, Universities, TAFE Colleges, private and corporate networks (LANs), friends, relations and club members are all possible sources of potential viruses.

Lastly, YOU. It may not be intentional but you can be the guilty party without even knowing you are causing the chaos.

The Solution

The world's most widely used AntiVirus program is now produced by Symantec (2) Corporation in California USA. Symantec purchased the rights from Peter Norton (of Norton Commander and Norton Utilities fame in the 80's) some years ago. However, Symantec still use the "Peter Norton" theme in their publicity and advertising strategies. Called Norton AntiVirus for Windows, it has been released in different versions over the years. One of the best was Norton AntiVirus for Windows 95, version 2 and is still valid today provided the user has registered their copy, and the updated definition files are installed monthly from Symantec via the Internet.





Operation is controlled from the simple interface shown above, and little knowledge of computers is needed to scan and eliminate virus problems. The Options button offers the user a myriad of choices to configure the program. EG Automatic protection enabled option allows Norton AntiVirus to run in the background from startup, and works continuously seeking possible infection. An excellent choice being to check any floppy disk offered to you by a friend. Select just the A: drive and hit the Scan Now button and the job is done.

To offer total protection using Norton AntiVirus, the recommended Rescue Disks can be made from the software. Five or more new floppy disks are required to complete the automated tasks in producing your disks. Boot and command files are copied onto the first disk, and the remainder is used to store the virus definitions from the Norton database. In severe cases of a virus attack which destroys the Windows operating system itself, your first rescue disk is used to boot your computer from first switch-on. The computer is opened in DOS, and a simple dialogue box appears prompting for the next floppy. Choose the SCAN option and Norton will slowly scan all your computer files, and automatically eliminate any and all potential viruses on the way. This is the best way to "clean up" your computer, but BE WARNED – this process will take about FOUR HOURS to complete. Choose a quiet afternoon or early evening, set Norton to work in the Rescue Mode, then go and watch a long movie on the telly! Once done, remove the floppy and reboot your computer to see if Windows has been restored. If your computer is back to normal, you will be delighted that you spent this week's pocket money on purchasing the AntiVirus software in the first place.

For our more sceptical readers who perhaps cast aside these words, all that can be said is, once "hit" with a major virus and your computer fails to function correctly, don't blame the writer of this column. Buy the software and do the job properly in the first place – you will never regret it. By all means try out other brands of AntiVirus software. McAfee (3) is another good choice, and there are many others. However, be mindful that you will need to update the definition files every month. Pinching software from a mate is not the answer. If you value your own Ham Shack Computer, please take the time to protect your own (and other AR users) computer interests.

Computer viruses have become forefront in international warfare. The White House, Pentagon, military networks and satellites, Microsoft Corporation, and the financial institutions have each been under attack many times. Viruses are nothing new. Just one rampant virus could bring down the whole world's computer networks and international information exchange might collapse. It's far cheaper to fire a small stealth virus into the Internet than to hurl an attack with thousands of troops and billions of dollars in armaments.

Ham Tip No. 13. Never ever trust free AntiVirus software from any source. Spend a little time money and buy from a reputable software publisher who regularly offers updated virus definition files. You have been warned - there is no other effective solution.

Ham Shack Computers, No: 14 Packet Radio coming next month

(1) Ham Shack Computers Web Site:
http://www2.tpg.com.au/users/vk6pg
(2) Norton AntiVirus software:
http://www.symantec.com.au
(3) McAfee AntiVirus software
http://www.mcafee.com.au

73s de Alan, VK6PG

"By acting in unison we can ensure that amateur radio is properly represented at all levels of State, Federal, and International Government."

Ernest Hocking VK1LK, President, WIA

Gridsquare League Table Update

It's that time again!

I had intended to wait till the end of the summer VHF tropo season, but I will be going away in mid May, and would like to fit in one more update before then. Closing date for this update (terrestrial and EME):was 2 March 2002. Publication date: about 5 March on Web. Early updates are appreciated, late updates can not be included. Remember that any station not confirming his/her status at least once a year may be omitted from the table. A copy of the gridsquare rules is attached.

Guy VK2KU, vk2ku@hermes.net.au, QTHR 2002, Phone (02) 4759 2670

Guidelines for the Gridsquare League Table as at 26 October 2001

1. Submit number of grid squares claimed as worked on 144MHz, 432MHz, 1296MHz, 2.4GHz, 3.4GHz, 5.7GHz, 10GHz, 24GHz. No details of actual squares/stations required.
2. Starting date for contacts: 1st January 1990 (as for WIA Awards).
3. No distinction between modes (cw, ssb, fm etc.) -a square is a square.
4. EME claims to be listed separately.
5. Contacts via repeater or active satellite should not be counted.
6. Cross-band contacts should not be counted (on either band).
7. Contacts with aeronautical or maritime mobile stations should not be counted.
8. Except as allowed by Rule 9, all squares claimed must be worked from locations within a single limited "region", which can be encompassed by a circle of radius 50km.
9. A gridsquare may also be claimed by a "reverse contact" from that square to any station in your home square.
10. Entry is open to any VK, not just subscribers to the VK-VHF Reflector.
11. The Table of Standings will be posted on the VK-VHF Reflector roughly every 3 months, and may be reprinted from there in "Amateur Radio" and other magazines.
12. Updates to me at any time by email/mail (QTHR 2002).

Comments

If you move house to a new "region", you have to start again, though your old score still stands of course.

The intention of Rules 8 and 9 is to encourage portable operation (up to 100 km from home, or from a rare gridsquare) to overcome the limitations of a home qth, but not to an extent which confers an unreasonable advantage.

If you regularly go portable to a different "region", you can keep a separate tally for the /p operation.

There is no minimum number of squares to start - you don't need to have 50 squares on 2m! Please enter at any level so that we may all enjoy watching the growth of your tally.

No correspondence will be entered into by me regarding the veracity of people's claims. If you want more details from someone, please email them privately and not through the Reflector.

Guy VK2KU, vk2ku@hermes.net.au

Gridsquare Standings at 4 March 2002

144MHz	Terrestrial	
VK2ZAB	Gordon	70
VK3BRZ	Chas	62
VK2KU	Guy	61
VK2DVZ	Ross	58
VK2FLR	Mike	54
VK3TMP	Max	53
VK3EK	Rob	51
VK3CY	Des	50
VK3BDL	Mike	48
VK3XLD	David	47
VK3ZLS	Les	47
VK2MP	Rej	45
VK3FMD	Charlie	45
VK2DXE	Alan	43
VK3BJM	Barry	41
VK3CAT	Tony	39
VK3KAI	Peter	39
VK3WRE	Ralph	37
VK3KEG	Trevor	36
VK4KZR	Rod	29
VK2EI	Neil	28
VK6HK	Don	28
VK7MO	Rex	27
VK4TZL	Glenn	25
VK3KME	Chris	20
VK2TG	Bob	19
VK4DFE	Chris	19
VK6KZ	Wally	19
VK3TLW	Mark	18
VK2TK	John	17
VK3AL	Alan	17
VK3YB	Phil	16
VK6KZ/p	Wally	16
VK3DMW	Ken	13
VK2DXE/p	Alan	10
VK2TWO	Andrew	5
VK2CZ	David	1

144MHz	EME	
VK2FLR	Mike	85
VK3CY	Des	66
VK2KU	Guy	21
VK3KEG	Trevor	3
VK2DVZ	Ross	2

432MHz		
VK2ZAB	Gordon	46
VK3BRZ	Chas	45
VK3XLD	David	43
VK3FMD	Charlie	34
VK3EK	Rob	30
VK2KU	Guy	28
VK3BJM	Barry	28
VK3ZLS	Les	27
VK2DVZ	Ross	25
VK3TMP	Max	25
VK3BDL	Mike	24
VK3CY	Des	23
VK3KAI	Peter	23
VK2MP	Rej	22
VK3WRE	Ralph	21
VK3CAT	Tony	14
VK4KZR	Rod	14
VK7MO	Rex	14
VK3KEG	Trevor	13
VK3TLW	Mark	12
VK6KZ	Wally	12
VK2TK	John	11
VK3AL	Alan	10
VK3ANP	David	10
VK6KZ/p	Wally	8
VK2TG	Bob	7
VK3KME	Chris	7
VK3YB	Phil	6
VK2CZ	David	3
VK2TWO	Andrew	3
VK4DFE	Chris	3
VK2DXE/p	Alan	2
VK3DMW	Ken	1

1296MHz		
VK2ZAB	Gordon	25
VK2KU	Guy	19
VK3EK	Rob	19
VK3KWA	John	19
VK3XLD	David	18
VK3BRZ	Chas	16
VK3FMD	Charlie	15
VK2DVZ	Ross	13
VK3BDL	Mike	12
VK3BJM	Barry	11
VK3KAI	Peter	11
VK3TMP	Max	11
VK3WRE	Ralph	11
VK3ZLS	Les	9
VK4KZR	Rod	9
VK7MO	Rex	9
VK2TK	John	8
VK3TLW	Mark	8
VK3AL	Alan	7
VK6KZ/p	Wally	5
VK2MP	Rej	4
VK6KZ	Wally	4
VK3KEG	Trevor	3
VK3YB	Phil	3
VK2DXE/p	Alan	2
VK3BVP	Shane	2
VK3CY	Des	2
VK2CZ	David	1
VK3DMW	Ken	1

2.4GHz		
VK3WRE	Ralph	8
VK3KAI	Peter	7
VK3EK	Rob	4
VK3FMD	Charlie	4
VK6KZ	Wally	4
VK3BJM	Barry	3
VK4KZR	Rod	2
VK3TLW	Mark	1

3.4GHz		
VK3KAI	Peter	4
VK6KZ	Wally	4
VK3EK	Rob	3
VK3FMD	Charlie	3
VK3WRE	Ralph	1

5.7GHz		
VK3FMD	Charlie	7
VK3WRE	Ralph	6
VK3KAI	Peter	5
VK6KZ	Wally	4
VK3BJM	Barry	2
VK6BHT	Neil	2
VK3XLD	David	1

10GHz		
VK6BHT	Neil	9
VK3FMD	Charlie	6
VK6KZ	Wally	5
VK3EK	Rob	4
VK3KAI	Peter	4
VK2EI	Neil	2
VK3BJM	Barry	2
VK3TLW	Mark	1
VK3WRE	Ralph	1
VK3XLD	David	1

24GHz		
VK6BHT	Neil	3
VK2EI	Neil	2
VK6KZ	Wally	2

Additions, updates and requests for the guidelines to Guy VK2KU, VK2ku@hermes.net.au, or by mail (QTHR 2002). Next update of this table will be around 9 May 2002. Stations who do not confirm their status for more than 12 months may be dropped from the table.

David K Minchin VK5KK
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Web page: http://members.ozemail.com.au/~tecknolt
Fax: +61 8 82924501
Phone: 0403 368 066 AH only
All times are in UTC.

VK2 and VK4 to ZL 144 – 432 – 1296MHz!

After a lack luster Tropo Summer period, VK2 & VK4 have had a good tropo opening to New Zealand. Doug Friend, VK4OE reports ... when looking at the weather map on the Monday evening news (18th March), the possibility of imminent trans-Tasman propagation was obvious. However, with Tuesday being a very busy day for me both at work and all evening, it was only around 11pm on Tuesday evening that I read on the VK-VHF Reflector the first reports of hearing beacons and contacts being had from VK2 to ZL on 2 m and 70 cm. Checking the Hepburn tropospheric propagation indicator site confirmed this. But, Hepburn's 'machine' forecast for Wednesday the 20th (UTC) was showing a particularly startling red and orange 'band' from Southern VK4 to Northern ZL.

From my home location, terra firma obstructs propagation to ZL, and I knew from previous experience that if I were to be successful I would have to go out portable. On Wednesday morning I learned from local VK4's that on 2 m they had been working stations in Northern ZL, even as far as the Hamilton area South-East of Auckland and the Taranaki province well South of Auckland. So during the day I arranged for Trevor VK4AFL to ring me at work if the band looked still to be promising. Sure enough, around 4:00 pm local time (0600 UTC) Trevor telephoned saying that "the bands are wide open to ZL!" After arranging to leave work early, by 5:30 pm I was setting up my portable equipment on the eastern slope of Mt Coot-tha in Brisbane.

Immediately Nick ZL1IU [RF65VQ] was 5x9 just using only 25 W to my trusty old halo antenna. A few minutes later, after elevating the 70 cm and 23 cm antennas, an easy contact on 432.1 MHz at 5 x 7to9 signal strength was had with Nick. We made many further short QSOs over the next three hours on 2 m and 70 cm. Several other Brisbane VK4's were present, struggling sometimes with signal strengths. This confirmed that the preferred location to be was an elevated one. During this time, Nick could also be heard working several VK2s.

Nick is located in a prime position in ZL well towards the northern tip of the country's North Island. That's actually quite a way North and West of the high amateur population Auckland area. I suspect that if I had had a beam on 2m, I would have completed contacts with stations in that area, but my intended focus was on higher frequencies. [I did have equipment available for 2.403 GHz and 10.368 GHz, but no one was available/contactable in ZL to do those tests.] On 70 cm I was using around 20 W to a 21-el yagi and on 23 cm I had around 10 W to a 55-el loop yagi ready to use.

After telephoning Vaughan ZL1TGC in Auckland, the message quickly spread that I was out portable and set up for higher bands. Soon Keith ZL1AVO telephoned to say that he was listening and calling for me on 1296.1 MHz. It was a simple case of tuning and he was there, not very strong (QSB from unworkable up to 4 x 1) but enough for us to complete the contact (0905 to 0915Z). At about 2,250 km it wasn't a new distance record, but a truly memorable contact!

The fun of listening to a weak VHF/UHF station from so far away is unbeatable and tantalizing! [All the more on microwave frequencies!!] At 0943Z ZL1AVO and I made contact again on 23 cm, this time with signals up to 5 x 2. Apparently, the path had become significantly easier as time went on, but not for me to ZL on 2 m with my simple halo. There is a limit! Next time, I'll take a beam for 2 m as well!!

Around 8 pm (1000Z) Nick ZL1IU was heard to be working stations on 144 MHz in Hervey Bay (240km N of Brisbane) and even Yeppoon (530 km N of Brisbane) QRB around 2,600 km. John, VK4AJS in Yeppoon was hearing ZL1IU on 432.1MHz at about 5 x 1, but the QSO was not completed. That would have been a new VK4 distance record for this band...better luck next time! Some contacts were being had from Brisbane to ZL1IU on Thursday morning, but during the day the weather system moved on and we said good-bye to another one of these amazing incidents of extended VHF/UHF. 73s Doug VK4OE

Gordon VK2ZAB reports ... it has happened at last!! Stations worked by VK2ZAB on 19/03/02, 0227Z ZL1IU at Kaikohe on 2 m SSB 5/3 5/3, 0232Z ZL1IU on 70 cm SSB 5/3 5/3, 0254Z ZL2WSP at New Plymouth on 2m SSB 5/3 5/3, 0255Z ZL2WSP on 70cm SSB 5/1 5/1, 0301Z ZL2TAL on 2m SSB 5/2 5/3, 0310Z ZL2TE on 2m SSB 5/3 5/5, 0314Z ZL2VAL on 2m SSB 5/4 5/5, 0437Z ZL1TPH at Orema on 2m SSB 5/2 5/5, 0546Z ZL1TBG at Warkworth on 2m SSB 5/2 5/2, 0613Z ZL1AVZ at Auckland on 2m SSB 5/3 5/5.

Signals were generally stronger late in the day and early evening. ZL1IU got to S9. The duct formed further to the north as the evening approached and ZLs were working into VK4 at that time. At least a dozen VK stations were heard participating ... Gordon VK2ZAB.

From Port Macquarie, Neil VK2EI reports ... 18.3.02Z 2038 Gordon VK2ZAB alert Hamilton beacon audible. 5/1p at VK2EI. Both Auckland & Hamilton beacons audible with QSB all morning. No response to frequent CQs

19.3.02Z 0105 ZL2WSP Stu 5/2-5 5/

2-5. Responded to Guy VK2KU Reflector alert, 0138 ZL2TAL Ray 5/3-4 5/3 Alerted by Stu, Had to crank up his tower! 0227 ZL2TE Sid 5/2-3 5/2, 0253 ZL1IU Nick 5/1 (Not completed), 0311 ZL1IU 5/2 5/1, 0312 to 0433 Numerous contacts with ZL2WSP, 2TAL, 2TE, 1IU, 0435 ZL2VAL Alan 5/2 5/2, 0536 ZL1TPH/P Steve 5/3 5/5 Orewa, 0548 ZL1TPG Ralph 5/3 5/2 Warkworth, 0606 ZL1AVZ Brian 5/8-9 5/7 Muriwai (West of Auckland), 0724 ZL1BK/P Harry 5/4 5/8 Auckland FT817 4 W to 7el beam!! 0751 ZL1IU 5/8 5/5, 0857 ZL1AKW Dave 5/5 5/3-4 Tauranga, 0909 ZL1AVZ 5/9 5/9. 1925 ZL1TPH Dave 5/2 5/1 Home station.... previously portable, 1926 ZL2TAL 5/3 5/3, 1952 ZL2WSP 5/4 5/3, 2110Z Auckland beacon 5/6 and Hamilton 5/3.

Notes: Contacts from 0730Z on reduced my power to 12 W to reduce TVI. The Auckland & Hamilton beacons audible majority of the time, no others heard. Stu advised New Plymouth beacon off air due RFI to Garage Door opener!! Total worked 11; new contacts 8 and only 1 new grid square ... Neil VK2EI

50 MHz Report

Ray VK4BLK at Yeppoon reports ... Latest DX report as follows 24/2 0946 DL7QY S549 R559, 28/2 0942 PA4PA 549 539, 1012 SP6GZZ 539 559 2/3 0904-1008 LZ, UR, 9A, YU, ES & CT 31 CW QSOs. 7/3 0027 D44TA 55 58, 8/3 0121 D44TD 55 55, 12/3 0616-0931 EX, UN, YT, I, G, OE, OM & S57 17 CW QSOs 16/3 0135 D44TD 54 54 ... 73 Ray VK4BLK

Bevan VK4CXQ reports ... a bit more on my activities as mentioned by Ted G4UPS in the March AR

Most activity with Europe started about mid Feb with EH QSOs and some YTs, OMs and a welcome EH9. Some JAs & VRs crept in and a VU2 also. 18 Feb some Gs and an OY9 (Feroe Is), GMs and GWs. 20 Feb onwards it got busy with Italy, Bulgaria, Malta Yugoslavia, Poland, Slovak, Cyprus, Germany, Slovenia and & Czech QSOs 24 Feb was busy with 78 QSOs into EU including Ukraine, Belarus, Macedonia, Croatia, Switzerland France and Austria as well as the others mentioned above. Things quietened down for the next few nights but on 28th came back with Gs, PAs, DJs, SPs, OKs, OMs, Fs and a few JAs again.

March started with EX8MLT, UK9AA then the EU countries again March 2nd had 96 QSOs with EU and RW & RU and T9 and CTs March 3 - 45 EU QSOs inc 7 SVs almost one after the other. From 3-16 conditions changed and about 50/50 Asian/ EU QSOs ending with a nice HZ1MD QSO

From mid Feb to mid March about 400 QSO were logged on 6 Metres, 90% were EUs and 10% Asia Pacific Nothing into Nth/Sth America as yet - maybe next month ... Bevan VK4CXQ

EME Report

Doug VK3UM reports ... I managed to get on from 1200 -1345 UTC on the 23rd and worked (all random) RA3LE 55n 55n, S52CW 54n he disappeared after coming back?? SM2CEW 54n 56n, and SP6OPN 43n 55n. I heard HB9Q (55n) calling ZL1IU for ages (nothing heard here also) as well as OE5JFL (56n) and JJ1NNJ (33n). Faraday seemed consistent (about 80 degrees) with noticeable libration at about 10 degrees El when I almost fell asleep at the key. I subsequently gave it away before my moon set! I came on for moon rise at 0825 UTC on 24th and only found Toshi JA6AHB 55n 54n on. We both called for ages with no response and gave it at about 0900. Pretty quiet for an activity weekend but I guess the weather in Europe was not very good and of course it was pretty dark (early in the morning) on the other side of the pond for my moon rise!!

During the course of the month I received approval (under the new licensing conditions in VK) from our authorities (Australian Communication Authority) with respect to my high power permit for both 70 and 23 cm. This followed considerable (and detailed) measurement procedures and independent accreditation of radiation levels under the Australian Standard AS2772. The permit is for celestial experiments only and allows me 1500 watts on 70 cm and 750 watts output on 23 cm in association with the dish gain and other fixed losses. It is the first (and currently only) high power permit issued in VK under the new licensing conditions ... Doug VK3UM

VHF Activity!

After firing an "Exocet" at the lack of VHF contributions last month we seem to be back on track . thanks to some tropo propagation too! As suspected the bands are active. Gordon VK2ZAB reports ... I have been through my log for the 30-day period to 17/3/2002 and extracted the following list of stations worked on 2 m SSB with the distance and number of times worked (brackets) hundreds of contacts!

VK1BG 260 km (19), VK1BUC 260km (14), VK1ZQR 260km (14), VK1GL 260km (1)

VK2 KU 100 km (27), VK2BXT < 100km (16), VK2ZCV at 290 km (27), VK2EI at 290km (28) VK2BRG at 410 km (3), VK2ZRE at 340 km (15), VK2KWM at 330 km (1), VK2MP at 240 km (16), VK2AES at 240 km (3), VK2BDT at 190 km (3) VK2FLR < 100 km (5), VK2XKE <100km (8), VK2TQP at 415 km (16) out of 30 days, VK2AAS < 100 km (2), VK2AAS/p at 198 km (6), VK2BA at 390 km (12), VK2YO at 640 km (1) VK2DVZ at 230 km (10) VK2IJM < 100 km (8), VK2ZVF <100km (1) VK2TK <100km (10) VK2JDR <100km (4), VK2TG <100km (8) VK2KEP <100km (3) VK2EM at 120 km (1), VK2YFM <100 km (1), VK2ZBD <100km (1), VK2DCJ <100km (1)

VK3AJN at 530 km (13), VK3II at 725 km (20), VK3KEG at 740 km (17), VK3ANP at 540 km (2), VK3TDV/p at 380 km (2)

VK4AFL at 690 km (2), VK4DFE at 780 km (7), VK4AML at 715 km (14), VK4KK at 715km (1)

Then there was Barry VK3BJM who was contacted on several occasions between Melbourne and Sydney at all sorts of distances and sort of, maybe, partial contacts with Melbourne Stations VK3AFW and VK3FMD. In addition many of the 2 m stations were also worked on 70 cm SSB. VK4AML on 8 occasions for example ... Gordon VK2ZAB

WSJT

Rex VK7MO reports ... Joe Taylor, K1JT, has now produced a beta version of WSJT with an additional mode for tropo. It has similar objectives for weak signal tropo and EME as PUA-43, although not compatible with it, and is called JT44. It does not require the special receiver as for PUA 43 and appears to overcome the requirement for accurate timing by sending a synchronization tone in the first 15 seconds and 22 characters of information in the second 15 seconds. It uses the same 43 character "alphabet" as PUA-43 and sends each character as a separate tone spaced 10.77 Hz apart from 1270.5 to 1755.0 Hz.

While I have not yet found anyone to work the background info suggests it will work to -20 dB compared to an SSB bandwidth of 2500 Hz in 30 second segments and to -27 dB with signal averaging over 20 minutes. Thus it should do around 30 dB better than SSB.

The beta version is available at the following: First read the file http://pulsar.princeton.edu/~joe/K1JT/BETA192.TXT and then download the program at http://pulsar.princeton.edu/~joe/K1JT/BETA192.ZIP The new version also provides some improvements for FSK441 for meteor scatter. You can switch between JT44 and FSK441 by clicking a button. Sounds like it will be interesting to try ... Rex, VK7MO

John Moyle Field Day 2002

Chas VK3BRZ reports ... what a great weekend's activity the John Moyle field day turned out to be. The amount of interest in VHF/UHF SSB came as a surprise. We didn't even drag out the HF rig; such was the activity on VHF/UHF! I hope the VHF DX bug bit some of the tyros out with their clubs hard!

We (VK3ATL/p QF21CU) experienced sustained tropo ducting in all directions. The Mt. Gambier, Adelaide, Mildura, Nimitabel and Launceston 2m beacons were audible throughout the contest period. Notable 2m contacts included VK5ARC on 2m, VK5ACY (Kangaroo Is. PF84) and VK7KPB (Flinders Is), the latter two after the end of the contest period, but nevertheless welcome additions to our logbook. VK7KPB was also worked on 70cm.

Many thanks to Barry VK3BJM for QF14 on 23cm, the first new grid I've worked for over a year, on any band. (By the way Barry, our second attempt at 23cm late Saturday evening failed due to our 23cm battery supply having died! A battery voltage monitor/alarm is currently being designed ... Chas VK3BRZ

Microwave Round up

Another reminder that the 2002 Gippsland Technical Conference (GippsTech) will be held at the Gippsland Campus of Monash University, located in Churchill, on the weekend of July 6 & 7. The conference's focus is on all topics of relevance to amateurs interested in amateur VHF, UHF and Microwave communications. The conference location is about 2 hours drive east of Melbourne. For further information have a look at http:\\www.qsl.net\vk3bez\index.htm or contact Peter VK3KAI (QTHR).

New VK Microwave records

3.4 GHz and 5.7 GHz VK2 and VK4 records for both bands: VK3ZQB/2 and VK4ZHL/2 to VK5DK/4 and VK3XPD/4, 12/01/02, 380.9 km.

10 GHz VK2 record: VK2EI/2 to VK3ZQB/4 and VK4ZHL/4, 12/01/02, 331.3 km. This record then is supplemented by a new VK2 and VK4 record: VK3ZQB/2 and VK4ZHL/2 to VK5DK/4 and VK3XPD/4, 12/01/02, 380.9 km.

24 GHz VK1 record: VK1BUC/1 and VK3ZQB/1 to VK3XPD/2 and VK5DK/2, 18/01/02, 51.2 km. This record was then extended later in the same day to 59.7 km. VK4 record: VK3ZQB/4 and VK4ZHL/4 to VK5DK/4 and VK3XPD/4, 08/01/02, 74.0 km. VK3, VK5 and national record: VK3ZQB/3 to VK5DK/5, 25/01/02, 200.8 km.

Mobile Records: There are two new national mobile records: 3.4 GHz: VK3KAI/M to VK3EK, 19/01/02, 124.7 km 5.7 GHz: VK3KAI/M to VK3FMD/3, 19/01/02, 103.3 km. **10 GHz: VK3KAI/M to VK3EK, 19/01/02, 124.7 km.**

10 GHz Hotel Portable!

During a visit to Adelaide, Doug VK4OE brought with him his homebrew 144/2403/10368 transceiver. This must be the most compact 3 in one microwave unit around measuring approximately 350mm x 100mm x 300mm. Based on an IC202 (gutted and rebuilt into the case) the unit puts out 5 watts on 144MHz, about the same on 2403 MHz and 1 watt from a G3WDG transverter with a Qualcomm PA. Doug has travelled with this same unit through Europe, as previously reported in AR.

Doug VK4OE/P5 worked VK5KK/P on 10368.100 MHz on 11/3/2002 at 1032Z with 59+ SSB both way signals. Distance around 29 km non-line of site. Doug was located on the southern side of Adelaide CBD using a horn type antenna from the 9th floor of his hotel. Signal path was via scatter off numerous buildings over a 90-degree arc. VK5KK had a good view of the city from just above QTHR.

In closing

For something completely different have a look at some of the "Cartoon" artwork found under microscope on Integrated Circuit substrates http://micro.magnet.fsu.edu/creatures/index.html since the late 60's it looks like the various IC engineers have been leaving their own "personal" graphics on production ICs!

Between writing this column and the next I will be overseas. I'll leave you with this thought. "People who snore fall asleep first!"

73s David VK5KK

HF Predictions

by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

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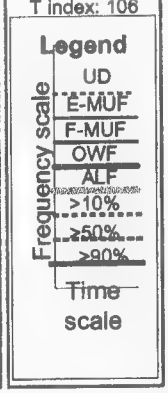
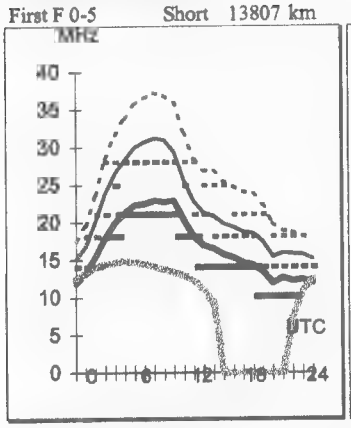
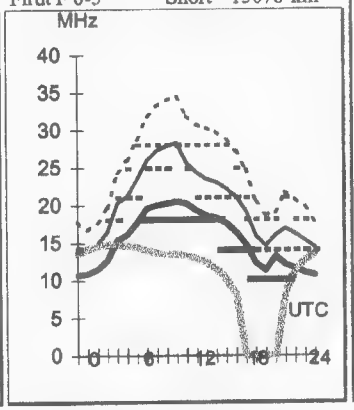


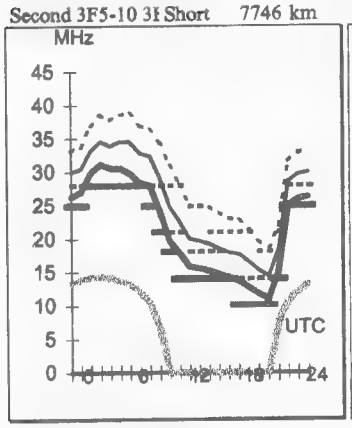
Adelaide-Moscow 318
First F 0-5 Short 13807 km



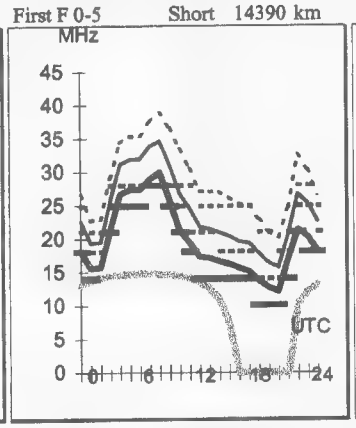
Brisbane-Berlin 321
Firdt F 0-5 Short 15678 km



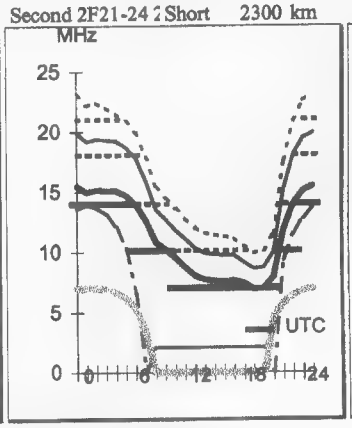
Adelaide-Osaka 357
Second 3F5-10 3I Short 7746 km



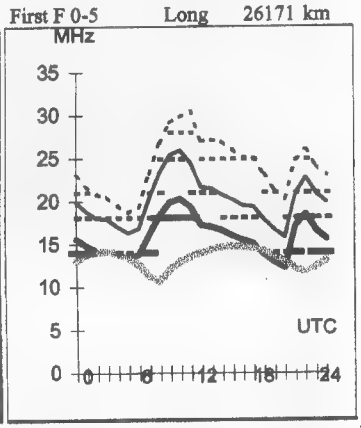
Brisbane-Cairo 288
First F 0-5 Short 14390 km



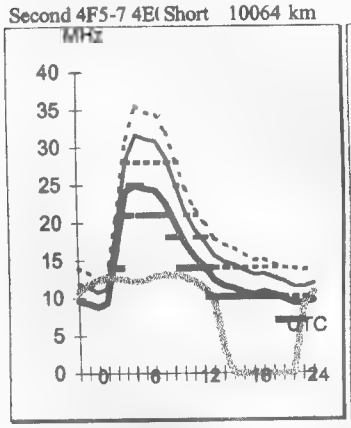
Canberra-Auckland 102
Second 2F21-24 2 Short 2300 km



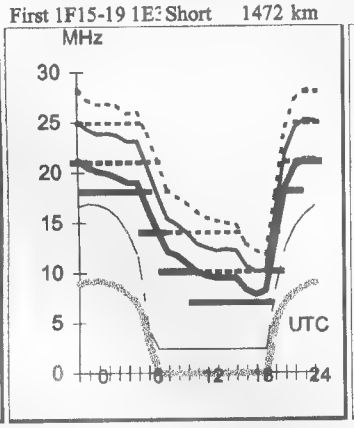
Darwin-London 145
First F 0-5 Long 26171 km



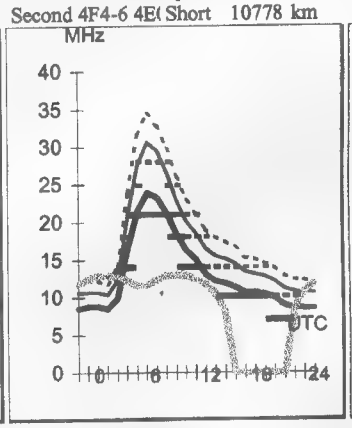
Adelaide-Pretoria 238
Second 4F5-7 4E(Short 10064 km



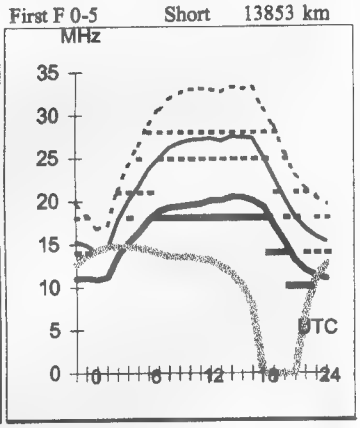
Brisbane-Noumea 70
First 1F15-19 1E: Short 1472 km



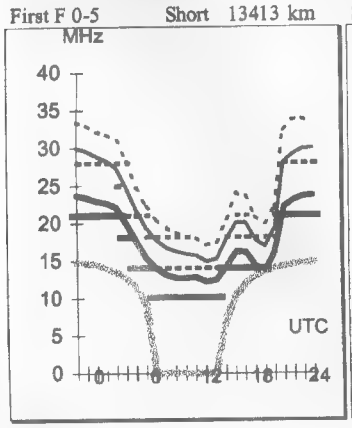
Canberra-Capetown 219
Second 4F4-6 4E(Short 10778 km



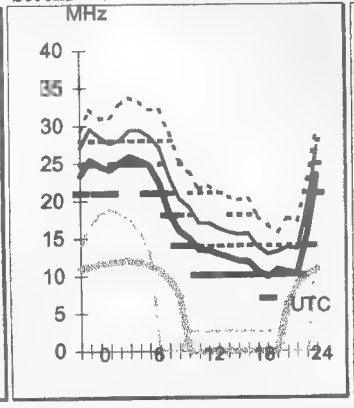
Darwin-London 325
First F 0-5 Short 13853 km



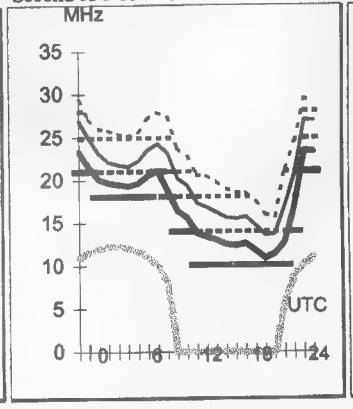
Adelaide-Seattle 51
First F 0-5 Short 13413 km



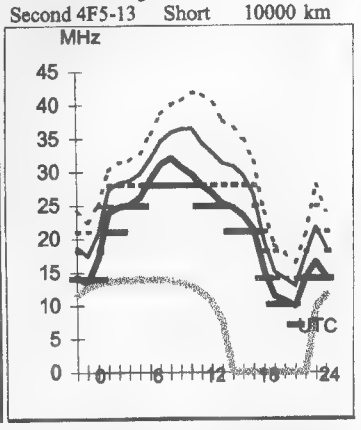
Brisbane-Singapore 293
Second 3F9-14 3I Short 6147 km



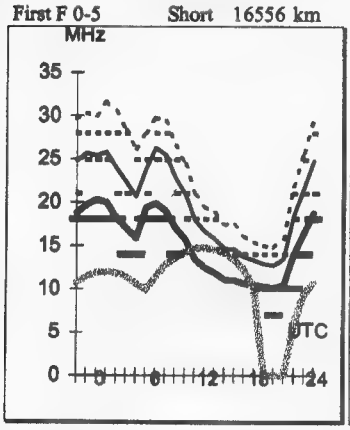
Canberra-Manila 327
Second 3F8-15 3I Short 6286 km



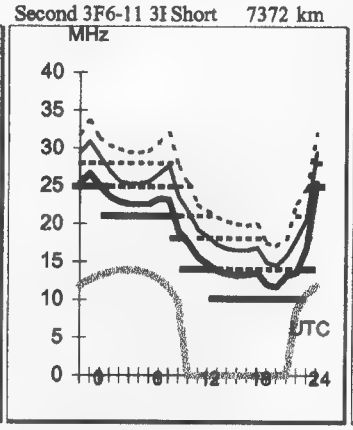
Darwin-Riyadh 295
Second 4F5-13 Short 10000 km



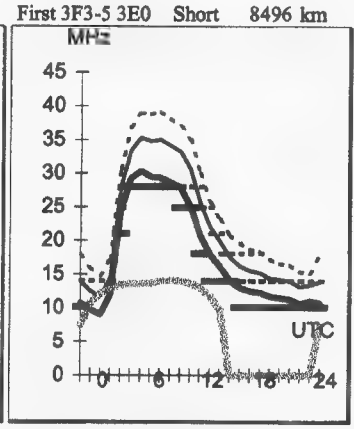
Hobart-Dakar 209
First F 0-5 Short 16556 km



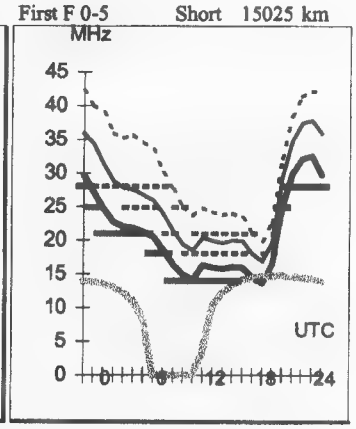
Melbourne-Bangkok 312
Second 3F6-11 3I Short 7372 km



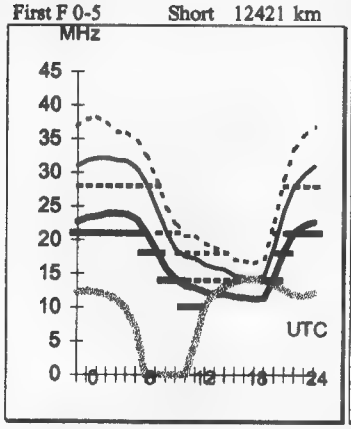
Perth-Harare 257
First 3F3-5 3E0 Short 8496 km



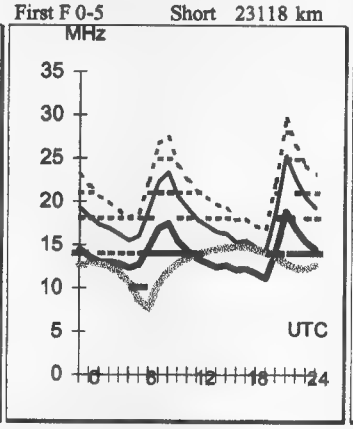
Sydney-Miami 86
First F 0-5 Short 15025 km



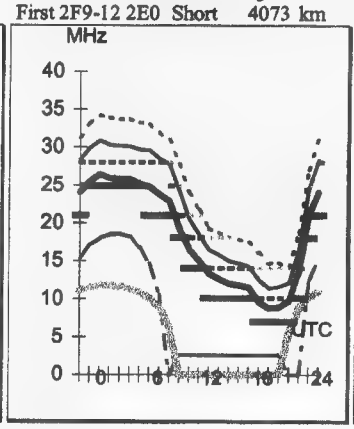
Hobart-Lima 138
First F 0-5 Short 12421 km



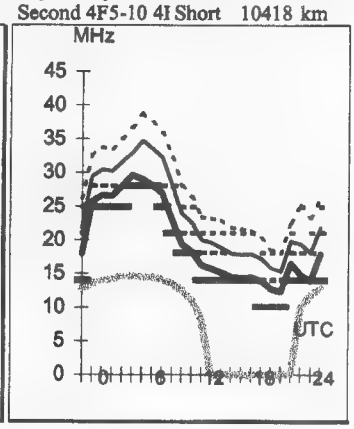
Melbourne-London 131
First F 0-5 Short 23118 km



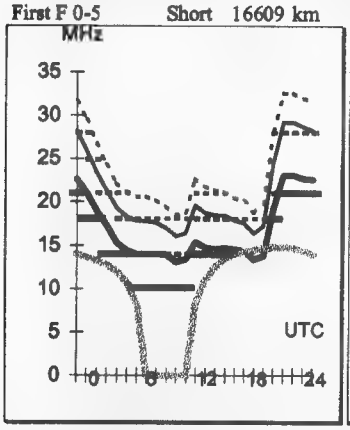
Perth-Port Moresby 59
First 2F9-12 2E0 Short 4073 km



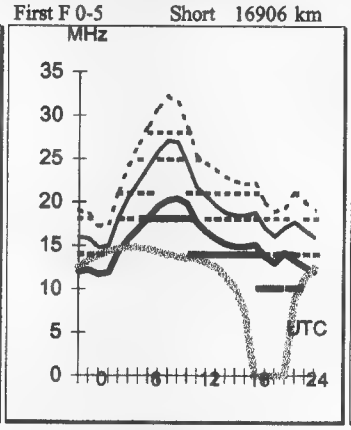
Sydney-New Delhi 302
Second 4F5-10 4I Short 10418 km



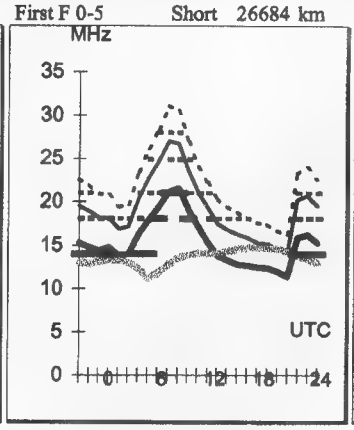
Hobart-New York 80
First F 0-5 Short 16609 km



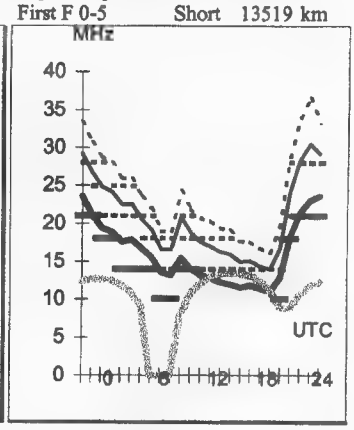
Melbourne-London 311
First F 0-5 Short 16906 km



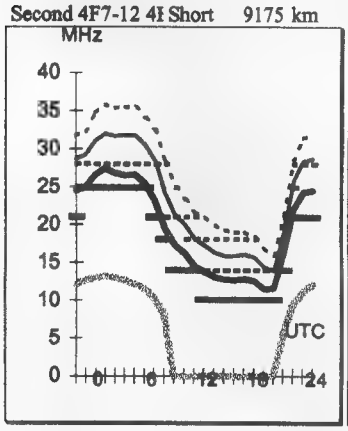
Perth-Rome 123
First F 0-5 Short 26684 km



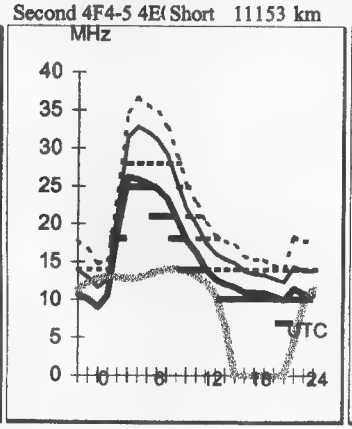
Sydney-RiodeJaneiro 164
First F 0-5 Short 13519 km



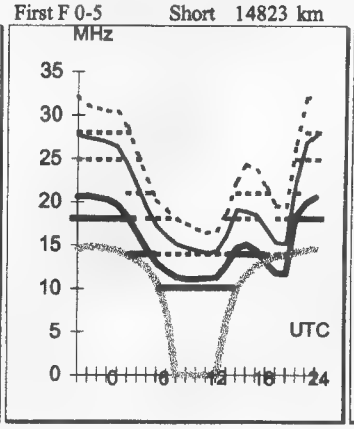
Hobart-Seoul 344
Second 4F7-12 4I Short 9175 km



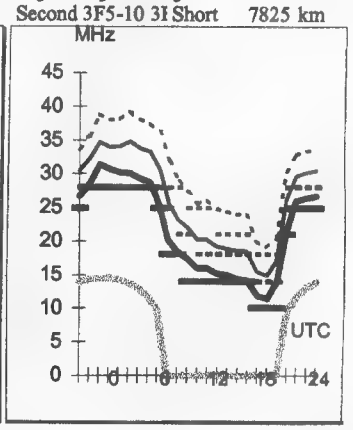
Melbourne-Lusaka 241
Second 4F4-5 4E(Short 11153 km



Perth-vancouver 50
First F 0-5 Short 14823 km



Sydney-Tokyo 350
Second 3F5-10 3I Short 7825 km



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Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*
Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

Please send your Hamad by ONE method only (email preferred)

FOR SALE NSW

• Two power supplies "Power-Tech" 10A 13.8V $110, and "Ferguson" 2A 13.8V cont. $35.Contact David VK2AIF QTHR. Phone 02 6586 4980

• Lower mast winch, all associated antenna. Remove premises. Offer. No charge. Complete station, all YAESU equipment, including manuals. Ross VK2AIH. Phone 02 9521 4475

• Shortwave receiver R-390A, good overhauled cond. $450. VK2EDD Phone 02 4982 9847

• YAESU FT-847 #86060458. Mint cond., manual. Original carton. HF/VHF/UHF. $2500 Les VK2KLD QTHR or Phone 02 4297 2737 or 0419 295 371

• Station close down. YAESU FT-707 xcvr with WARC bands, YAESU FP-707 power supply, YAESU YM34 desk mike, SX200 Diamond swr/ power meter 1.8 to 200 MHz, EAT-300 EMTRON antenna tuner, PALOMAR tuner , YAESU FT-212RH mobile 2m xcvr, PACKRAT PK-232 MBX packet control with computer disc and all cables used twice, YAESU World Clock. Wooden Hutch 1299mm L X 750 mm H X 300mm D fitted with 13.8v power points and earthing points. All equipment mounts in this hutch. All equipment in perfect condition. Will throw in PHILIPS FM-828 good condition, FU400 COMANDER antenna rotator 400 lbs vertical loading. The lot $1700. Charles VK2NAJ QTHR Jindabyne Phone 02 64561646

• Power supply. DICK SMITH Lab Power K3206, variable to 40 volts (-20,+20) 3 amps. Adjustable current limit. Volt & current meters. Brand new never used, $200 ONO. VK2AS QTHR Phone 02 9416 7784

• KENWOOD TS-50 HF Amateur Transceiver with AT-50 Tuner, c/w Mic, All Cables, H/Books, Mobile Mount & Hardware etc, in Original Packing. VGC. $1500 ONO. Peter VK2APP Phone 02 6382 6086. pcpage@dragnet.com.au

• YAESU 757-GX xcvr. faulty memory and tx, audio rough, receiver OK $350. YAESU FT-707 xcvr, rough tx audio, receiver OK $300. George VK2DJR QTHR Phone (02) 66874807. Email-gbud@dnet.aunz.com

• Estate of Peter Campbell VK2AXJ. MFJ1278 Multi Mode Data Controller, GC, $200. CHY 8220G Universal Counter, GC, $100. Packet Modem, BLAK PAK, GC, $50. TNC PAC COMM Tiny2, GC, $150. YAESU FT-26 2m HH, spare batt pack, FC, $200. Power supply ETI Dual Rail, GC, $50. Scanner REALISTIC Pro 2021, FC, $100. Noise bridge OMEGA-T TE7-01, GC, $25. Receiver KENWOOD R-2000, GC, $350. Mic YAESU MH14, GC, $25. YAESU FT-757GX HF, GC, $550. YAESU Auto ATU FC-757AT, GC, $250. ATU MFJ498 Versa Tuner, GC, $100. Solder station WELLER WTCPN, GC, $100. Power supply JAYTECH MP088 30A, GC, $300. PHILIPS PRM80, UHF, not working, $20. YAESU FT-212RH 2m, GC, $300. YAESU FT-3000M 2m GC, mic, $200. BWD 539A 5" Dual trace Scope, GC, $100. Solder station UNGAR 9900, FC, $50. VARIAC YOKOYAMA SB10 2kVA 10A, FC, $50. FLUKE DMM 8022, GC, $100. Antenna SCALAR 2m 5/8, HB GP, Fair only, $20. Antenna KINGRAY 27MHz marine, no base, fair, $10. All Serial numbers available, major items with manuals. Stan VK2EL, QTHR Phone 02 4455 5825. email: sbourke@shoal.net.au

• WARBIRD displays: Rxs, Txs, modulators, racks, mounts, remotes, some complete Command setups as used in WWII operations. Brian, VK2GCE, 02 9545 2650 or [preferred] brianclarke@idx.com.au

WANTED NSW

• Datasheets on the following sub-miniature valves. (Alternative type numbers in brackets): JG-6111 (JRP-6111), JAN-5899 (CV-477), JAN-6021 (JRP-6021), JHS-5718, EF72 (CV-465), CV469. Will pay reasonable photocopying and mailing costs. Contact Pat Brennan VK2ABE, PO Box 158, Tamworth NSW

FOR SALE VIC

• WARBIRD displays: Rxs, Txs, modulators, racks, mounts, remotes, some complete Command and Radar setups as used in WWII operations. Bill, VK3AQB Phone 03 9337 4902 or jikajika@net2000.com.au

• KENWOOD TS-711A 2m all mode transceiver, VGC with operating manual, hand mike and service manual $600 ONO. Damien VK3RX Phone 03 5427 3121.

• KANTRONICS KPC-3 packet communicator. New, unused, boxed. $120. DATONG RF speech processor, wired for 8 pin Icom. $60. Power supplies. 3.5 amp $30. 3.5 amp metered $35. OSKERBLOCK SWR-145 VHF 5/ 25/ 250 watt power/ SWR meter $100. KENWOOD DM-81 dip meter, as new, boxed, $75. Ron VK3OM QTHR. Ph. 03 5944 3019.

• MILITARY Equipment. ARB receiver 150kHz -9 MHz complete perfect condition , tuning head, control box all cables and tuning shaft. No mods. Also comes with ARR-1 type UHF homing receiver with hard to get plugs and accessories. Probably most complete example operating in Oz. $490. BC-348 N Original complete with DM 28 dyno. No holes or mods and with original wiring. Front panel refinished. Photo available.$480. BC-342 N. perfect condx. no holes and as ground /mobile rx has original 115 AC power supply builtin in lieu of dyno. $360. OS-4B/AP Navy radar/Oscilloscopes, new with manuals and cables 2 available, $60 each. Collins avionic HF xcvr 618T-3. no cables or plugs. $450. Freight extra. VK3IZ fax 03 5156 2049 email; jupeter@datafast.net.au QTHR.

• Clearance: ICOM IC-27A 2m xcvr in box + extras $250: MFJ1278T $300. MFJ1274T $200. MFJ931 Artificial Ground $95. TIMEWAVE DSP9 $200: KENWOOD MC80 Base Mic $100. UNIDEN HR2510 with chipswitch $350. Tower wind-up 60ft $400. YAESU FC-700 ATU $120. Phone David VK3NDS Phone 0419 357 104 or email dcsimpson@optushome.com.au

WANTED VIC

• 6 metre solid state linear, anything considered. Peter VK3DU Phone 03 9379 3626

• Type 955 acorn tube for "Measurements" model 59 megacycle meter. Prefer swap something I've got, you need. Drew VK3XU QTHR. Phone 03 9722 1620

• Desperately seeking for Wireless Set No 11 - One three pin male chassis power socket (triangular pattern with two big pins) and two female plugs to suit. A Press To Tune switch (S5A) and Pull For RC switch (S6A). Rectangular black bakelite front panel 3 hole jack cover (labelled PHONES and LINE). One brass nameplate for LP PSU. One PSU case with or without power supply chassis (HP or LP unit). Clem VK3CYD Phone 03 5126 2064 clem@dcsi.net.au

FOR SALE QLD

• Transformer 3000 volts CT 250 mA multi tap 240 V Primary. Also 4500 V CT plus 3000V CT 500 mA and 1 amp. Primary 110 V and 220 V multi taps. Tropical sealed metal case. Valves 2 off EIMAC 100TH. Best offers. VK4UA Phone 07 5546 7041.

• YAESU FT-757 GX HF All mode Transceiver with scanning hand microphone, DC lead, technical manual, excellent condition $500.00. CUSHCRAFT AV-5 Trapped HF Vertical antenna, as new with full owners manual $350.00. ICOM HM-98 Deluxe DTMF scanning hand

microphone, new in box $65.00. YAESU MUSEN FP-301 HD Heavy Duty Power supply for 150 watt output transceivers. 30 A plus, built in communications speaker $395.00. KENWOOD PG-3B Noise Filter $35. PG-2N DC Power Cable $25.00. MB-201 Mounting Bracket $30.00 All items new. Shure R5R Microphone Insert New $45.00. Contact: John Abbott VK4SKY QTHR, Phone 0417 410 503, Email:johneabbott@hotmail.com

WANTED SA

• Has anyone a copy of May 1998 Amateur Radio they do not want. Will buy, pay postage. Do need it VK5BUJ. Murray, Phone 08 8738 0000 QTHR

• Wanted very urgently two chokes L151 and L237 for the restoration of an ASTOR TV model ESJ 17 inch B & W If you can supply these components PLEASE contact me at mgell@arcom.com.au phone 08 8294 6906 VK5ZLC QTHR.

FOR SALE WA

• Australian Official Radio Service Manual Volumes 1 and 2 giving circuit diagrams and service information on all domestic radios produced in Australia for 1937 and 1938.In good condition. What offers? Contact John VK6JAH jah@ois.com.au

• 1.2 GHz! Yes, that's 1.2 GHz. YAESU FT-2311R mobile transceiver, 10 W FM, offsets, memories etc, c/w mic & DC lead but no mounting bracket or book. Good condition and performance. Previously from deceased estate. Sensible offers please. John, VK6XJ QTHR Phone 08 9295 3333 or email jtuppen@q-net.net.au

WANTED WA

• Old general coverage valve communications receiver in any condition for a restoration project - especially HAMMARLUND SP600JX, RCA AR88, NATIONAL HRO or COLLINS 51J4. What 'boat anchor' receivers do you have gathering dust and rust in your garage? Steve Ireland, VK6VZ. Phone: 08 9298 9330 or email: sire@iinet.net.au

FOR SALE TAS

• YAESU FRG-7700 $475. ICOM 207H (as new) $525. UNIDEN 100 Scanner $150. Kevin VK7YKR Phone 0417 514 802,

WANTED TAS

• ALINCO speaker-microphone unit EMS-9 or similar to suit DJ180-DJ480. Also wanted either a 50ch or 200ch memory to suit same. Other accessories also considered. Alternatively a YAESU FT-26 in going order. Rod VK7TRF QTHR. Phone 03 6227 8925, 0417 314 425.

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a not-for-profit site that is a search engine for hams

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or call Arthur VK3VQ on **03 9598 4262** or Allan VK3AMD on **03 9570 4610**, for an application form.

ITEMS FOR SALE TAS

2 only Microwave Link Units ex Hec, a trailer or ute required to pick these up, $50.00 ea

1 only Icom IC-2800H service manual on CD ROM, $30

1 only Toshiba T1900 monochrome 486SX laptop computer with 4Mb of RAM, 123Mb hard drive, very good condition $150

1 only Toshiba TI 910 monochrome 486SX laptop computer with 4Mb of RAM, 123Mb hard drive, very good condition, $150

1 only Toshiba T1960CS colour 486DX laptop computer with 4Mb of RAM, 123Mb hard drive, very good condition but no battery or power supply, "as is where is" $80.00

1 only Toshiba Satellite Pro 410 Pentium laptop, CD ROM, external floppy drive, good battery, docking station and original carry bag, all in perfect condition $800 ONO.

2 only ATN 11 element 477MHz UHF CB beam antennas with baluns, phasing harness and ATN power divider, all N connectors and mounted on spreader bar $100 the lot.

1 only Telereader CWR-670E with manual all in good order $50.

2 only Philips FM-900 base unit radios with digital clock and power supply, programmed for 2m $150 each

1 only PacComm TNC-320 with manual $100.

1 only MFJ Turbo Packet Radio Controller, model MFJ 1270B, brand new, never used $100

1 only Icom IC-28A 2m transceiver with optional I-IM-14 DTMF microphone and tone unit also mounting bracket, manual and box, as new condition $400. There is also a service manual available for this radio at an additional cost of $30.00

1 only Yaesu FT 2311R 1.2GHz mobile transceiver fitted with optional tone unit and comes with mounting bracket, manual and box mint condition $400.

1 only Australian Military Forces A510 wireless station in very good condition and as far as I can tell is complete apart from the Morse key, whereabouts unknown $300.

Service Manuals For Sale

1 only Kenwood TS-600.
1 only Kenwood TS-830S
1 only Kenwood RZ-1.
1 only Kenwood TM-201/D.
1 only Kenwood TW-410OA/E.
1 only Kenwood TS-850S
1 only Alinco DR-605T/E/Teirre2.
1 only Alinco DJ-GLT/E.
1 only Alinco DJ-50OT/E.
1 only Yaesu FT-470.
1 only Yaesu FT-3000M.
1 only Yaesu FT-900.
1 only Yaesu FT-ONE.

Instruction Manuals

1 only Kenwood TH-25A/TH-45A.
1 only Kenwood TH-751A/TH851A.
1 only Kenwood TS-700A.
1 only Kenwood TS-820S.
1 only Kenwood TS-180S.
1 only NEC CQ-110E HF-SSB.
1 only Yaesu FT-980.
1 only Yaesu FT-757GX
1 only Yaesu FT-ONE.
1 only Yaesu FC-301 Antenna Tuner.

All manuals are $30.00 each regardless of type and size.

Contact David Spicer VK7ZDJ,
5A Helen St, Ulverstone, Tasmania.
Phone 03 6425 2030, 0413 219 680

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Over To You

Mental Illness and The Amateur Code

The Amateur is Friendly...Slow patient sending when requested, friendly advice and counsel to the beginner, kindly assistance, cooperation and consideration for the interests of others; these are the marks of the amateur spirit.

Paul M. Segal *ARRL Handbook*

I would like to provide this information so that the Amateur Radio Fraternity might understand a bit about Operators who have a mental illness.

People who have mental illnesses are mostly harmless to others. They are more a danger to themselves, as they often reflect back onto themselves their many struggles trying to maintain a "normal" life, while coping with their illness. Some have repeated suicide attempts. Some of these sadly succeed.

Extreme sensitive, creativity, intelligence and the inability to cope with stress and emotional pain is very common with sufferers. Often the sufferer knows this. They then try at all cost to stay out of these situations, in case the situation triggers an episode.

Medical drugs are often used to control the person's symptoms. A "balancing act" has to be achieved by the Professionals, as the side effects of the medication can be worse than the illness. The sufferer may be turned into a mindless "blob" appearing lifeless, unmotivated, intoxicated. They may be generally very "unmoved" by events that ordinary people would relish over. If the balance of the medication is not correct the sufferer may have delusions, hallucinations-auditory-visual-smell and taste. Also the ability to concentrate for long periods of time is impossible. The simple job of adjusting an antenna tuner may take many short sessions but will be completed correctly.

Extreme depression may result, for example, if you handed a sufferer a million dollars they would just not want it. Then again they may appear overly happy about everything. Even events that are sad and traumatic to other people. They may also believe they are a "genius" in a field they have knowledge of eg delusions of being a genetic Engineer and creating, making plans, talking about engineering a plant that will rid the world of Cancer is a good example. The discussions a sufferer will have appear to be very feasible though they will be very "over the top" for ordinary people.

Also when someone is delusional, obsessions with religion, constant praying and believing they have an ability to heal people of sickness are very common behaviours. In extreme situations the sufferer will believe he is God himself. The whole universe revolving around themselves. A very lonely place to be!

Routine in the life of someone with mental illness is very helpful. Amateur radio it is often a way of "holding on" to "the real world". The "shack" is a "castle" and, in cases of severe obsession, the gear has to be kept running near to perfection. If a piece of gear breaks down the sufferer will try and try to fix the problem to the detriment of his loved ones, family, friends and money. It may result in the person becoming "unstable" as "his world" appears to be threatened very badly. The operator may go to enormous extremes to "fix" the problem to "get back" to familiar ground.

You may encounter the operator of mental illness sounding vague and disoriented with slurred speech. A lot of these symptoms may be caused by the medication. The person is usually very aware of this and feels very "different" to others; often a "freak" and tires so hard to be "normal" like everyone else. They try very hard to "fit in", because they feel the need to be accepted by others and their peers. It can be so hard for them to just say: "Well you are a real LID for treating me that way on air" and throwing the "big switch".

Some sufferers may just give up!

How you can help?

Be honest with the operator. If the ideas presented appear above you, communicate this fact in a gentle manner. Try NOT to condemn the person and try not to ignore his efforts to be your friend/fellow operator.

People with mental illness are often very perspective and often "read between the lines" on the "thread" of a conversation. Try and allow the person credence to their ideas, and try and respect their opinions on your ideas. Rejection is disastrous to a sufferer.

Often encouragement means SO MUCH! It may just give the person hope to face another hour, day, week, month etc.

If you find you are not "handling" their manner, maybe it's time you gently told them in a non-threatening way or "throw the big switch" and kick the dog. NOT the "Missus or kids!!

Acceptance of their situation may be difficult at first. It is the key!

In time you will gain a true loyal friend, and you will gain a lot of patience and wisdom in learning that you have so much and so much more to give.

Thank you and 73s

Heinz VK3BEW @ VK3EEE
Email: vk3bew@iprimus.com.au for comments and feedback.

Note 1 Views expressed in the letters and opinion columns are those of the authors and do not necessarily represent the policy of the WIA.

2. Some of the letters may be shortened to allow more letters to be published.

Address letters to:

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Amateur Radio
34 Hawker Crescent
Elizabeth East SA 5117

or email:

edarmag@chariot.net.au

"Without the efforts of the WIA intruder watchers many of our frequencies would have been rendered useless a long time ago."

Ernest Hocking VK1LK
President, WIA

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

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All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Thursday evening from 8.00pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $80.00 Pensioner or student $71.00. Without *Amateur Radio* $48.00

From VK2WI 1.845, 3.595, 7.146*, 10.125, 14.160, 24.950, 28.320, 29.120, 52.120, 52.525, 144.150, 147.000, 438.525, 1281.750 (* morning only) with relays to some of 18.120, 21.170, 584.750 ATV sound. Many country regions relay on 2 m or 70 cm repeaters. Sunday at 1000 and 1930. Highlights included in VK2AWX Newcastle news, Monday 1930 on 3.593 plus 10 m, 2 m, 70 cm, 23 cm. The broadcast text is available on the Internet newsgroup *aus.radio.amateur.misc*, and on packet radio.

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VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $83.00 Pensioner or student $67.00. Without *Amateur Radio* $51.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $95.00 Pensioner or student $81.00. Without *Amateur Radio* $69.00

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 USB, 7.065 USB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.

Annual Membership Fees. Full $88.00 Pensioner or student $73.00. Without *Amateur Radio* $58.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $90.00 Pensioner or student $77.00. Without *Amateur Radio* $57.00

VK8 Northern Territory (part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz).

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Print Post Approved PP349181/00420